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CITY OF TORONTO
PLANNING AND DEVELOPMENT DEPARTMENT
AND
THE DEPARTMENT OF PUBLIC WORKS

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334/085255
Policy
April 23, 1986.

To. City Services Committee

Subject. Network 2011

Origin: City Services Committee Meeting of June 18, 1985 (c71csc86005:44)

Comments:

SUMMARY

A. THE NETWORK 2011 PROPOSALS

- The Network 2011 report proposes a 28-year staged plan for additions to the TTC rapid transit network in Metropolitan Toronto costing $2.7 billions in total.

- The plan proposes to build the following three new rapid transit lines in 5 stages:

  - Sheppard Subway Line (first stage, $500 m, 1989-94: second stage $740 m, 1999-2004).

  - Downtown Relief Line(1994-99, $565 m).

  - Eglinton Busway (first stage 1999-2004, $395 m: second stage upgrade to rail, 2010-2115, $425 m).

- The plan also proposes that the Harbourfront/Spadina LRT line be built during 1987-9 at a cost of $93 m as an interim measure to serve the Central Area.

- The plan proposes a number of other interim measures including support for incremental improvements to GO Rail services to Union Station and the establishment of a five-year review process and Central Area monitoring system.

B. HISTORY AND CONTEXT OF NETWORK 2011 PROPOSALS

- The history of the Network 2011 planning process reveals a bias towards the study of rapid transit solutions to Metro's future transportation problems originating from the concerns of the 1979-81 period of rapid TTC ridership growth.

- Consequently certain transportation issues, such as the problems of inter-regional commuting across the Metro boundary, the provision of adequate road capacity in suburban areas and the possibility of improvements to the TTC surface transit system, have not received the same level of attention as the rapid transit proposals.

- To some extent the absence of a regional planning framework and the lack of a Provincial co-ordinating role make it difficult to develop an effective process for long-range transportation planning at the regional scale.

- Any attempt to predict the regional pattern of trip growth for the next thirty years is subject to a number of assumptions regarding future land use, demographic development and travel behaviour and therefore the results of the Network 2011 study have to be regarded with caution. In particular, the Network 2011 travel demand model was not well-suited to addressing the questions of GO transit requirements and the road capacity needs of the suburban areas where trip growth has been highest. Also, there was only a limited testing of transit system alternatives and already the land use (population and employment) assumptions upon which the travel demand model was based have been significantly changed.

- Given the difficulties of predicting long-term travel demands, the proposed monitoring and five-year review processes recommended in the Network 2011 report are of particular significance and should be supported.

C. GENERAL ISSUES

C.1 Demographic Trends

- Nearly all the regional population and employed labour force (ELF) growth to the year 2011 is forecast to occur outside Metro, although approximately 40% of regional employment growth (i.e. jobs) will be in Metro, with a 96,500 employment increase forecast for the Central Area.

- Consequently, the majority of new trips will originate outside Metro and there is expected to be a considerable increase in inter-regional commuting, particularly from the west (Peel Region) where population growth is forecast to be greatest. Metro's revised regional population and employment projections further exaggerate this trend.

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C.2 Travel Patterns

- Over the 1975-85 period inbound rush-hour trips at the Metro boundary cordon increased by 90% during the peak-period compared to 10% at the Central Area cordon with most of the suburban trip increase by auto.

- The slowdown in the growth of Metro's ELF will result in further increases in inter-regional commuting and many of these trips will be difficult to serve by TTC rapid transit.

C.3 Inter-Regional Issues

- The basic questions are how can rapid transit lines that do not extend beyond the Metro boundary solve the inter-regional commuting problem and to what extent can rapid transit effectively service low-density suburban areas which have developed around the use of the auto?

- These questions can only be addressed within a regional planning framework.

- From a Central Area perspective one item of inter-regional transit planning that should be immediately pursued is the incremental expansion of GO Rail services and the implementation of fare and service integration between the regional GO Transit and local TTC systems.

C.4 The Sub-Centres

- Although the Network 2011 report appropriately gives considerable weight to the importance of supporting the Metro planning policy of deconcentration through the use of major transit investments to encourage the continued development of the suburban sub-centres, there is a need to place the growth of these sub-centres in perspective.

- The two major Metropolitan sub-centres are the North York and Scarborough City Centres which in the Network 2011 land use forecasts are estimated to experience employment increases of 33,300 and 23,200 respectively by the year 2011. In contrast, the comparable figure assumed for the Central Area is a 96,500 employment increase while the total figure for the region is 946,000.

- Both the Scarborough and North York Centres are already on rapid transit lines and, in the case of North York, road capacity might prove more of an inhibition to future growth than concerns over transit access.

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- It is recognized that it is important to the policy of deconcentration that the next rapid transit investment not be made to service the Central Area but it remains reasonable to question what level of suburban transit investment is appropriate and affordable to promote the development of the sub-centres.

C.5 Cost and Affordability

- The Network 2011 strategy requires that an average $97 m. a year be invested in TTC capital projects for the next 25 years. However, the Province, which pays for 75% of these costs, has yet to comment on the affordability of the Network 2011 proposals.

- The need to continue expanding the TTC rapid transit system at past rates when the future is expected to see no growth in Metro's population requires careful consideration. The boom years of Metro's growth will not be repeated to the same degree in the future.

- Current transit funding arrangements, whereby all rapid transit construction costs are met by government subsidies (Province 75%: Metro 25%), encourage investments in these capital intensive facilities.

D. THE NETWORK 2011 MAJOR TRANSIT PROPOSALS

D.1 The Eglinton Busway Line

- The major arguments in support of this line are as follows:

  - it serves the major area of inter-regional trip growth from the West.

  - it could be an effective extension of the proposed Mississauga busway.

  - in the long run, it provides relief to the Bloor subway line and St. George Station.

  - it is needed because road improvements are difficult to make at the west Metro boundary and a large part of the required transit right-of-way is already in place along the Eglinton Transportation Corridor.

- The major arguments against the line are:

  - the pattern of trips at the west Metro boundary is very dispersed (for example, only 30% of existing peak-period

inbound trips are destined to the Central Area) and may prove difficult to serve by a single rapid transit line.

- to work effectively the line needs to operate as an extension of the proposed Mississauga busway as an inter-regional service. However, to be competitive as an inter-regional facility, operating speeds would need to be quite high and station stops limited to provide the required express-type service. This may limit the usefulness of the line as a local service for Metro residents unless a combination of local/express service can be developed.

- relatively little land use change is anticipated along Eglinton Avenue and the new transit line is not being proposed as a strategic investment to guide the future pattern of development.

D.2 The Sheppard Subway Line

. The major arguments in support of this line are:

- it supports the development of the major Metropolitan sub-centres at the North York and Scarborough City Centres.

- it relieves the heavily used Sheppard and Finch Avenue bus routes and frees-up road capacity in this congested travel corridor.

- it provides a connection between three other rapid transit lines (Spadina, Yonge and the Scarborough RT lines) and improves rapid transit access to a great number of Metro residents.

- it intercepts north-south feeder bus routes and the Richmond Hill GO-line from the growing Region of York.

. The major arguments against this line are:

- it is very expensive to build and has relatively low peak-point ridership (estimated 16,200 passengers per hour by 2011). The choice of subway technology can be questioned on these grounds.

- the demand for peak-period travel between the North York and Scarborough City Centres appears limited and the line seems to function primarily as a collector route fed by north-south buses, with much of its patronage made up of existing transit riders drawn from these routes.

- the sub-centres are already served by rapid transit and there is no immediate need for a Sheppard subway line.

- the Sheppard subway might attract more riders to the Yonge line and exacerbate capacity problems to the south at the Bloor/Yonge Station with the result that the need for the Downtown Relief line is accelerated.

D.3 The Relief Line

. The Network 2011 report identifies the Relief Line as a necessary facility to alleviate future crowding on the Yonge-University subway system south of Bloor Street.

. There is little question that the Yonge subway line is today operating at close to capacity during rush-hours and that the development potential of the Central Area could accommodate significant increases in office employment that may result in further rush-hour crowding on the subway system south of Bloor Street.

. The key issues relate to the timing and form of transit improvements to the Central Area. The Network 2011 report identifies the Relief Line as the preferred solution and estimates the line will be needed in service by the late 1990's. It is also our opinion that the need for additional TTC rapid transit services to the Central Area can be deferred till some time in the 1990's and we support the recommendation that the Relief Line be protected as a second priority transit option as identified in the Network 2011 strategy.

. Before outlining the reasons for this position, some details of the Relief Line proposal should be provided:

- the line is planned to run from Pape subway station to Union Station and westwards under Front Street to Spadina Avenue.

- two possible alignments through the Central Area section (Spadina Avenue to the Don River) are presented: the preferred alignment runs under Front Street to Union Station then follows the south side of the rail corridor at grade to the Don River; the alternative route follows a Wellington/Front Street alignment to the Don River.

- the line could use either ICTS or subway technology and is largely underground where following City streets and both alternatives have minimal property impacts.

- a vehicle storage yard is required, the preferred site being in the Pape/Eastern Avenue area.

- the preferred alignment requires major changes to Union Station to accommodate a third platform and increased pedestrian flows.

- the Network 2011 analysis projected 13,800 peak riders on the line by 2011 but a more detailed DRT demand estimate shows 15,700 peak-point, peak-hour riders by the year 2001. However, only 58% of this latter estimate are riders transferring at Pape Station who are diverted from using the critical Bloor/Yonge subway interchange.

. Our acceptance of the Relief Line as a second priority is based on three principal considerations:

a) that there will be incremental improvements to GO Rail services to Union Station, including fare and service integration with the TTC system, and that other possible interim solutions (such as the Spadina/Harbourfront LRT line, the Sherbourne Express bus and improvements to Bloor/Yonge Station) continue to be pursued.

b) that the Relief Line be considered as second priority to enable the next major investment in Metro transit services to be directed to the suburban areas in support of the policy of deconcentration and to improve overall transit access in these areas.

c) that current trends in economic, technological and demographic factors suggest that the future rate of office employment growth in the Central Area may prove to be slower than in the past.

. It is recommended that the Network 2011 options include further consideration of a transit line under Bay Street and that, in terms of the Relief Line proposal, it is the view of the Commissioner of Public Works that the Wellington Street alignment for the central section of the Relief Line route should be preferred over the Front Street/Railway Corridor alignment recommended in the Network 2011 report.

E. CONCLUSIONS

. Network 2011 represents an ambitious 30-year plan for a $2.8 billion expansion of the TTC rapid transit system in Metro. Like all such long-range plans, it should not be regarded as representing a rigid blueprint for the future.

- This report supports the Network 2011 recommendation that a joint Metro/City monitoring program of Central Area land use/transportation relationships be established and that five-year reviews of Metro's transit needs be undertaken. It is further recommended here that the five-year reviews should be of a comprehensive nature and should be co-ordinated by the Province as part of a larger five-year review process of regional transportation needs including GO transit and road requirements.

- With its emphasis on capital intensive rapid transit solutions to Metro problems, the Network 2011 study tends, perhaps understandably, to under-state the seriousness of the inter-regional transportation problems and the related needs for suburban road improvements. Also, at the Metro level, the possibility of less costly improvements to the TTC surface transit system are somewhat downplayed.

- The Network 2011 study process and results illustrate the need for a stronger Provincial role in co-ordinating and directing land use/transportation planning at the regional scale.

- Demographic and travel trends indicate that increasingly serious inter-regional commuting problems will arise and more attention must be given to these cross-boundary issues in determining Metro's future transportation priorities.

- This report recommends the integration of fares and services on the GO Transit and TTC systems to provide better co-ordinated and more attractive inter-regional transit services.

- There appear to be arguments both for and against the proposed Sheppard and Eglinton lines. The Sheppard line is seen to play an important strategic role of directing the pattern of land use development in support of the growth of the major Metropolitan sub-centres in North York and Scarborough. The Eglinton line's merits rest on more operational concerns relating to the need to alleviate increasing transportation pressures at the west Metro boundary.

- However, both the North York and Scarborough Centres are currently served by rapid transit lines and, given the planned size of these Centres, the immediate need to directly link them by an expensive subway line appears debatable. The Eglinton line only functions effectively if extended into Mississauga but its impact on transit service in Metro could be limited and it is not being proposed as a strategic investment to guide future development.

- Overall, this report recognizes there is a priority need to improve transit services in both the Sheppard and Eglinton corridors to meet growing suburban travel demands, support the policy of deconcentration and improve transit access in suburban areas. However, decisions on the form of these improvements should be made within the context of an established Provincial position on the scale, form and affordability of such improvements and their relationship to broader Provincial regional transportation planning strategies.

- Metro Toronto is now in a relatively mature state with a stable level of population and the future need to continue expanding expensive TTC rapid transit service within Metro at past-investment rates requires careful evaluation.

- Metro should be careful not to over-invest in capital intensive transit facilities at the risk of neglecting to maintain an attractive surface transit system (bus, trolley-coach and streetcars) with acceptable fare levels. The majority of TTC trips involve the use of the surface transit system.

- This report recommends that the Province report on the affordability of the Network 2011 rapid transit strategy prior to Metro Council giving any further consideration to the Network 2011 proposals.

- This report supports the acceptance of the Relief Line as a second priority option on the basis of a number of considerations. Perhaps the most important of these relates to the incremental improvements to GO Rail services to Union Station, including fare and service integration with the TTC, as discussed above. Also, the other interim measures identified in the Network 2011 report should be endorsed (specifically the Spadina/Harbourfront LRT line, the Sherbourne Express bus and the Yonge/Bloor Station improvements) and other possible transit options (such as an underground line along Bay Street and surface transit improvements in the Don Valley Corridor) should continue to be considered in the five-year review process.

- Other important considerations regarding the deferral of rapid transit improvements to the Central Area till the late 1990's relate to uncertainties regarding the future rate of office employment growth in the Central Area and the need, at this stage, to continue supporting the policy of deconcentration by investments in suburban (rather than centrally-oriented) transit facilities.

In considering the Relief Line, it is the position of the Commissioner of Public Works that the Wellington Street alignment for the central section of the Relief Line route should be preferred over the Front Street/Railway Corridor alignment recommended in the Network 2011 report.

Recommendations:

1. That City Council endorse protecting the option for the Relief Line as a second priority rapid transit route as recommended in the Metro/TTC Network 2011 report and that this option be subject to a comprehensive review in 1992 as part of the five-year review process as also recommended in the Network 2011 report provided that the capacity of the GO Rail system serving the Central Area is improved on an incremental basis and measures are undertaken to integrate the fare and service structures of the TTC and GO Transit systems.

2. That City Council:

   a) support the expansion of the five-year review process identified in Network 2011 into a formalized structure that includes the establishment of a technical committee with representatives from the Province (MTC), Metro, the TTC and Regional and Area Municipalities, to monitor and assess the requirements and priorities of major transportation improvements within the Greater Toronto Area;

   b) request the Province to expedite the adoption of Official Plans for all the surrounding Regional Municipalities and that the Province co-ordinate the five-year reviews of these plans with the review process identified in recommendation (a) above.

3. That City Council confirm its support of the establishment of a joint City/Metro monitoring program for the Central Area to provide annual reports on trends in land use and transportation relationships.

4. That City Council request the Province to respond to the issues of affordability/subsidies, priorities and short-term regional transit initiatives as they relate to the Network 2011 rapid transit strategy prior to Metro Council giving any further consideration to the Network 2011 proposals.

5. That Council endorse the interim transit measures to serve the Central Area as identified in the Network 2011 report (specifically the Spadina/Harbourfront LRT line, the Sherbourne Express bus and Yonge/Bloor Station improvements)

and that other possible transit options (such as the Bay line proposal and surface transit improvements in the Don Valley Corridor) continue to be considered and included in the five-year review process.

6. That City Council support the position of the Commissioner of Public Works that the Wellington Street alignment for the central section of the Relief Line route be the first preference and not the Front Street/Railway Corridor alignment recommended in the Network 2011 report.

7. That City Council recognize as a priority the need to improve transit services in both the Sheppard and Eglinton corridors and that decisions on the form of these improvements should be made within the context of an established Provincial position on the affordability of such improvements and their relationship to broader Provincial regional transportation planning strategies.

Stephen G. McLaughlin,
Commissioner,
Planning & Development
Department

R. M. Bremner
Raymond M. Bremner,
Commissioner,
Department of Public Works

1. Background

On June 18, 1985, the City Services Committee had before it a communication (May 30, 1985) from the Metro Clerk, forwarding a report entitled "Network 2011: A Rapid Transit Plan For Metropolitan Toronto" together with a number of related background reports. The Committee requested the Commissioner of Planning and Development and the Commissioner of Public Works to report on this matter.

The following report begins by presenting a summary of the Network 2011 proposals followed by a brief description of the historical context and process of the Network 2011 study. A separate section reviews a number of general issues and concerns that are relevant to the development of a City position. These general observations are supported by more detailed comments on each of the three rapid transit lines proposed in the Network 2011 report. A final section on conclusions and recommendations is then presented.

2. Summary of Network 2011

2.1 Major Proposals

Network 2011 is Metro's latest proposed long-term plan for expanding the TTC's rapid transit system. The proposal, which includes the construction of 3 major rapid transit facilities, has an estimated cost of $2.7 billion ($1985) and would be implemented over a period of 28 years (1987-2015). Upon completion, approximately 39 km of rapid transit service would have been constructed, representing an expansion to the existing 60 km of rapid transit service of over 65%, at an estimated average cost of approximately $67 million per kilometer ($1985).

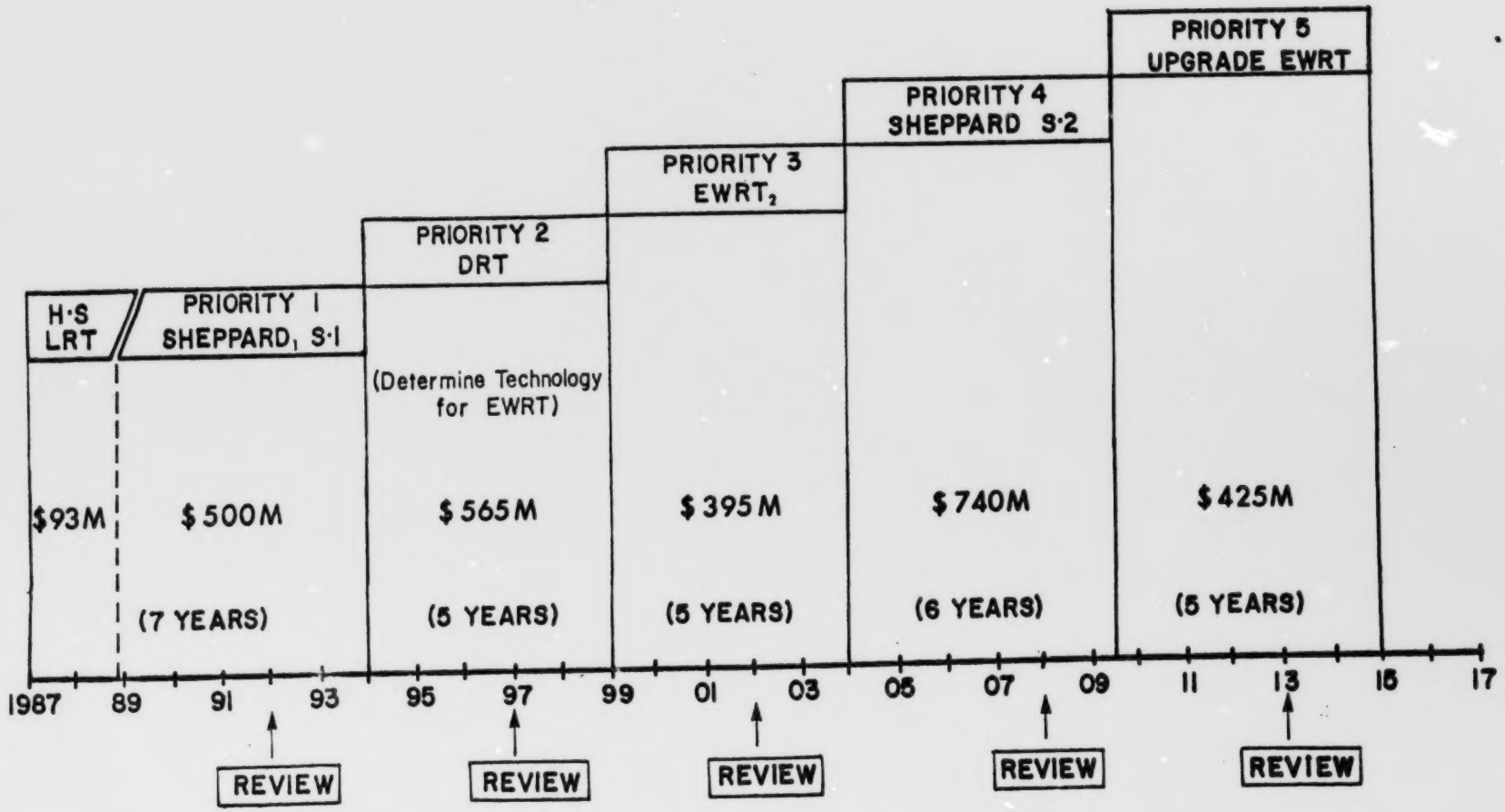
A summary of the proposed plan is presented in Chart 1 and illustrated on Map 1. As indicated, the plan includes the following major proposals:

1. A Harbourfront/Spadina light rail transit line at a cost of $93 million. This facility, although not considered a rapid transit line, has been included in the Network 2011 framework because of the need to co-ordinate its financing with the Network 2011 proposals.

2. A Sheppard Avenue subway running from the Scarborough Town Centre to an extension of the Spadina subway at a cost of $1.2 billion. Phase 1 would be completed by 1994 and Phase 2 by 2010.

3. A Downtown "Relief Line" running from the Pape subway station to Spadina and Front via Pape Avenue, Eastern Avenue, the CN Lake Shore rail corridor, and Front Street. In the event that a right-of-way cannot be secured in the CN rail corridor, an alternative alignment through the Central Area along Wellington and Front Streets from Spadina Avenue to the Don River is recommended. The technology for the line has yet to be determined, although it is assumed to run below City streets. An estimate of the cost of this line of $565 million has been provided assuming ICTS technology similar to that in use on the new Scarborough RT Line. The Relief Line would be in operation by 1999.

4. An Eglinton West rapid transit line running from the west Metro boundary to the Spadina subway. Service would be upgraded incrementally as justified by demand, with a busway in place by 2003 at a cost of $395 million possibly followed by an LRT or subway at an additional cost of $425 million by 2015.

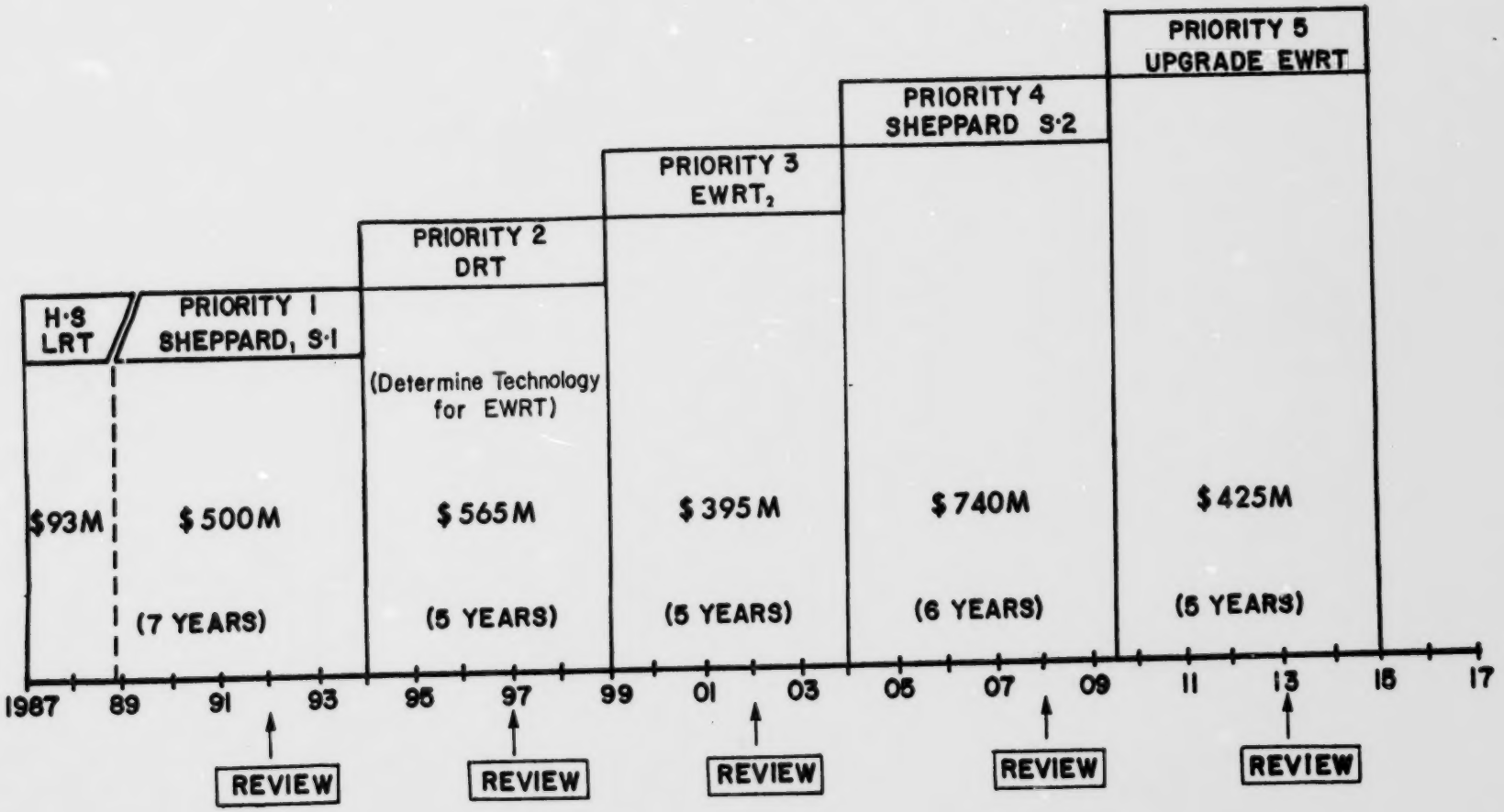


1. Sheppard Stage I is Yonge Street to Victoria Park
2. Assumes initial implementation of a busway

CHART 1

PROPOSED 28 YEAR METRO RAPID TRANSIT EXPANSION PROGRAM

CITY OF TORONTO PLANNING AND DEVELOPMENT DEPARTMENT
STEPHEN G. McLAUGHLIN, COMMMISSIONER



1. Sheppard Stage I is Yonge Street to Victoria Park
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CHART 1

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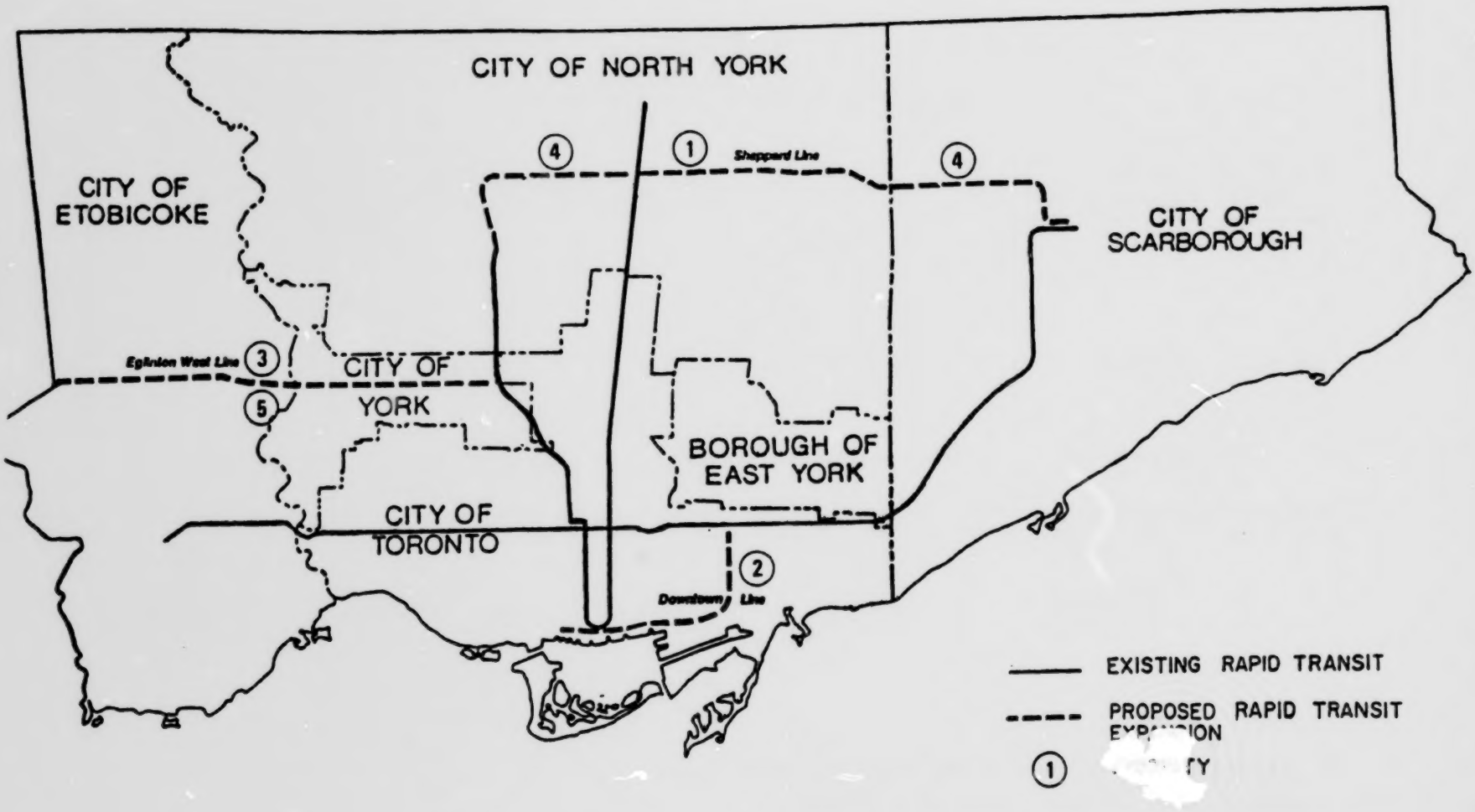


MAP 1
"NETWORK 2011" PROPOSALS

2.2 Interim Measures

In addition, there are a number of concurrent actions proposed as interim strategies, including:

- supporting the establishment of joint Metro/City comprehensive development and transportation monitoring program for the Central Area;

- initiating a study to identify the route to be protected for a westerly extension of the Sheppard Subway through north-west Metro;

- providing interim relief in the Central Area as necessary, by implementing the Sherbourne Express Bus, the Yonge/Bloor Station improvements and the Spadina LRT;

- continuing to support GO Commuter Rail improvements to accommodate anticipated commercial development in the downtown area;

- securing right-of-way and a yard site for the Downtown Relief Line and releasing lands in Etobicoke that have been held in reserve for yard purposes;

- supporting the implementation of a busway through Mississauga, including a connection to a new inter-regional bus terminal at Kipling Station on the Bloor Subway;

- widening Sheppard Avenue east of Victoria Park Avenue to implement reserved transit lanes with a connection to the Scarborough City Centre via a transit-only Brimley Road bridge across Highway 401; and

- further consideration of a possible busway from the Scarborough City Centre to Malvern.

2.3 Phasing of Network 2011

The Network 2011 report states that the question of what should be the first priority "is the crux of the whole debate". Metro staff have proposed constructing Phase 1 of the Sheppard Line first for the following reasons:

> "- it would provide significant transit service improvements to the existing large passenger volumes in the corridor (currently the heaviest rush hour surface route usage in Metro), and the expected

growth in ridership with the continued development of the North York Centre;

- it strongly supports the objectives of the Metropolitan Official Plan; and

- it improves rapid transit accessibility to a large segment of the Metro area." (p. iv)

The Network 2011 report recognizes the problem of congestion on the Yonge subway line but concludes that the anticipated short-term growth in ridership can be handled by a number of interim measures (such as the introduction of a Spadina LRT service; a Sherbourne express bus service; other improvements to surface routes, and increased capacity on the GO-Transit commuter rail lines) until the Relief Line is completed in 1998. The importance of improvements to GO Rail service is discussed later in this report in more detail.

3. Network 2011. Context and Process

3.1 Historical Context

The impetus for the Network 2011 report goes back to the turn of the decade. Between 1979-81 TTC system ridership increased dramatically by 13% from 346 to 392 million riders a year. In 1981 peak-point ridership on the subway system immediately south of Bloor Street hit an all-time high of 38,800 southbound passengers in the morning peak-hour.

After a period of ridership decline from 1975-8, the TTC surprisingly found itself in a new position and planning policies were revised to reflect the new situation. The abrupt change in policies can be seen in the following two quotations from TTC reports which were produced little more than a year apart. After three years of study, based on the experience of the mid-seventies, the TTC concluded in its 1979 policy report "New Directions" that:

> "The problem now is not how to shape rapid growth, but how to deal with the implications of limited growth." (p.47)

Soon after in a Feb. 1981 TTC/Metro staff report that led to the creation of the "Accelerated Rapid Transit Study" (ARTS), the following situation is presented:

> "The problem is not the promotion of increased ridership on the TTC, it is rather the constraints of the system in handling increased ridership. This applies to both the need for possible additional rapid transit routes and the necessary improvements to the road network to accommodate surface transit."

Based on the experience of the 1979-81 upsurge in TTC ridership, the ARTS study process was set in motion with its emphasis on identifying the possible need for new rapid transit lines in Metro. The ARTS report, completed in May, 1982, is the direct forerunner of the "Network 2011" report. The ARTS report concluded that two rapid transit lines would be required by 1991 - the Relief Line and the Sheppard Avenue line. However, Metro Council added a third proposal - the Eglinton West Line- and approved terms of reference for the further study of all three in June 1983.

In October 1982 the Provincial government announced the GO-ALRT program to study future plans for a dramatic expansion of the regional transit services in the Greater Toronto Area (GTA). This

announcement was shortly followed by the release, in December 1982, of the TTC's first "Long Range Plan" document. The TTC Plan gave clear priority to the Relief Line and recommended its early approval by Metro and the area municipalities.

In late 1984 the GO-ALRT program was effectively concluded as a separate study and much of the study's staff and resources transferred to the studies of the Sheppard/Finch and Eglinton corridors. These two corridors had come to be recognized as first priority elements of a possible long-term inter-regional rapid transit system stretching across the entire north Metro area and beyond. In May 1985 the Metro/TTC Network 2011 report was published as an overview document that consolidated the results of the three major rapid transit studies (Sheppard, Relief and Eglinton lines) and provided an overall systems planning context for the establishment of a long-term TTC rapid transit strategy. As a part of this new transit strategy the Relief Line had now slipped to second priority.

From the outset it can be seen that the emphasis in the studies leading up to the Network 2011 report has been on rapid transit solutions. Although over two-thirds of existing TTC trips are estimated to involve the use of surface transit routes, the Network 2011 strategy study paid relatively little attention to proposals for more modest improvements to bus, trolley-coach and streetcar services. Similarly, limited attention was given to the issue of future road needs and the future role of GO-transit was not directly studied as an integral part of the Network 2011 strategy.

Consequently, it can be seen that in the brief five-year history from the development of the New Directions report (1980), ARTS (1982), TTC Long Range Plan (1982) to the Network 2011 report (1985), the projected rapid transit requirements in Metro have varied from none to three new lines, with the priority of the Relief Line also changing considerably within the overall picture. This brief history well illustrates the shifting grounds upon which the development of long-term regional transportation plans are usually based. As a result such plans seldom survive to see their full implementation.

In practical terms, therefore, the Network 2011 report should not be considered as a rigid blueprint for the next thirty years. Basically, the report raises the question of which line, from a choice of three, should be the next rapid transit facility to be built in Metro.

3.2 Study Process

Given the history recited above, there are obvious characteristics about the Network 2011 study process that should be noted:

- emphasis on capital intensive, rapid transit solutions;
- study area confined to Metropolitan Toronto,
- based on three separate studies which are later combined into a Network 2011 transit systems framework.

These characteristics impart certain limitations and biases to the Network 2011 study process. Perhaps the most serious of these is the failure to pay adequate attention to the broader regional picture. This point will be discussed in more detail later. However, it should be noted that with virtually all the region's population growth and 60% to 70% of all its employment growth expected to be outside Metro (1981-2011), the full region-wide picture cannot be ignored.

Varying resources and methods were applied to the three separate studies of the Sheppard, Relief and Eglinton lines and, at times, the different results can be difficult to compare. Transit system tests were conducted on the basis of population and employment forecasts developed for the GO-ALRT program under the set of assumptions labelled "Scenario A". The Scenario A population forecasts are based upon relatively optimistic assumptions and the employment estimates are derived from the ultimate development aspirations of the various regional official plans. However, in the separate study of the Relief Line, for example, two other forecasts of Central Area employment were developed and a range of employment growth identified from which the average figure was taken for planning purposes.

The pattern of regional trip demands predicted on the basis of Land Use Scenario A was tested against three alternative transit systems and System 3, which contains all the proposed lines recommended in Network 2011, was identified as the one which "best responds to the future rapid transit needs of Metropolitan Toronto" (Network 2011, p. 25). System 1 is essentially the same as 3 except for a western extension of the Sheppard line, while System 2 assumed the implementation of the GO-ALRT lines that were proposed at one stage and did not include the Sheppard and Relief lines. The system-testing of the Network 2011 options was, consequently, quite limited.

There are also two components of the Network 2011 transportation model simulations that are viewed as potential shortcomings. One is the lack of detailed road assignments and analysis to

complement the transit strategy. The other is the inability of the Metro transportation model to integrate the split of trips between local rapid transit (TTC) and GO-transit, which results in regional transit trips being forecast separately as a sub-set of the initial auto/transit split of trips.

With respect to the road assignments, some description is provided in the Network 2011 report (see pg. 39) which indicates over-capacity conditions at the West Metro boundary and along the Sheppard corridor in the vicinity of the Leslie Street screenline. However, it is our understanding that the level of detail for this analysis does not include an assignment process that realistically reflects road capacity constraints or a road network detailed enough to assess the seriousness of these capacity deficiencies at the sub-centre level.

There has been some attempt in the Network 2011 report at analyzing the potential for GO-transit to accommodate future travel demands. However, this analysis has been conducted independently of the model since the model does not automatically distinguish local from GO transit trips. No adjustments to the 2011 transit network assignments have been undertaken to account for the possibility that a number of inter-regional trips which are assigned to the 2011 transit network may be more appropriately assigned to the GO-transit system (assuming enhanced services and/or fare integration). This situation reinforces the need for an overall systems analysis (land use, road and transit) which more adequately assesses the Network 2011 strategy against other regional and local rapid transit strategies and/or GO-transit service initiatives.

These criticisms of the Metro Demand Model are not intended to detract from the considerable effort that was put into its formulation. The Metro model is certainly as sophisticated as any others that are available for the class of problem to which it was addressed. However, it is important to recognize the limitations of these type of models when evaluating their results and developing recommendations.

The comparative evaluation of the three proposed rapid transit lines is at times somewhat inconsistent. An example can be found in the recommended technologies for the three proposed transit lines. The study of the Eglinton Line states that ICTS and subway technologies are designed to accommodate demands in the 20,000 to 34,000 passengers per hour range. Nevertheless, the Network 2011 study recommends these technologies for the Sheppard and Relief lines but not (at least in the first stage) for the Eglinton line, although the Eglinton line is predicted to have the highest demand in 2011 (18,800 peak point passengers) and all three fall below the 20,000 cut-off figure.

By posing the question of "what should be our first priority?" as the "crux of the whole debate" (Network 2011, p.ii), the Network 2011 study draws a predictable response from Metro's area municipalities. Etobicoke and York wish to see the Eglinton line made first priority and are supported in this position by the Region of Peel and City of Mississauga. North York and Scarborough, on the other hand, support the Network 2011 position that the Sheppard line be first priority, with Scarborough arguing that the first phase should be expanded eastwards to provide full subway service to the Scarborough City Centre at the earliest possible date. East York sees the Relief Line as being the first priority. The study process deflects attention away from the broader regional-wide issues.

In this context it is interesting to note that the Metropolitan Board of Trade, in viewing the entire Metropolitan picture, concluded that "the need cannot be proven" for any of the three rapid transit lines and that improvements to surface transit would be a better "practical low cost alternative".

Although the Network 2011 study process focusses attention at the Metro scale, it should be recognized that in reality the role of the Province is critical. Specifically, as will be discussed in a later section, the affordability of the Network 2011 strategy has been premised on the current capital subsidy arrangements between the TTC & MTC (i.e. 75% MTC, 25% TTC). Any changes by the Province to this arrangement could have a major impact on the financial feasibility of the Network 2011 strategy. Similarly, possible variations in future levels of ongoing operating subsidies from the Province should also be brought into consideration.

There is also an important Provincial role/responsibility with respect to overall land use and transportation planning in the Greater Toronto Area (GTA). The Province with its Official Plan approval powers has the opportunity to co-ordinate the land use and transportation plans of all the Regions and Area Municipalities in the GTA. In this context, it would seem advantageous to conduct the five-year reviews of all Regional Plans at the same time rather than having one Region's plans following another without the benefit of a comprehensive review of major area-wide issues. In this regard, it should be recommended that the Province take the necessary action to approve and implement Official Plans for all the Regions in the GTA (i.e. Halton, Peel, York, Durham & Metro) and establish a co-ordinated five-year review process under the auspices of the Ministry of Municipal Affairs and Housing and the Ministry of Transportation and Communications as appropriate.

Furthermore, the MTC, with its mandate for GO-transit planning, should be requested to respond to the proposed Network 2011 strategy prior to Metro Council considering its approval. It is only in this way that the financial and regional transportation trade-offs between Network 2011 and GO-transit can be assessed.

4. General Issues and Concerns

4.1 Demographic Trends

As noted above, the population and employment estimates used in the Network 2011 analysis are based upon the GO-ALRT Scenario A projections. These projections are presented in Table 1 and Exhibits 1 and 2 below.

GO-ALRT Scenario A is described in the "Network 2011" report as " ... optimistic but useful for forecasting purposes, in that it presents an upper range of future growth" (Appendix C page 1). From Table 1 it can be seen that virtually all the regional population growth is outside Metro, with approximately 40% of the growth expected to be west of the Metro boundary in Peel Region and the east part of Halton Region. One of the few areas of population growth within Metro is the Central Area (P.D.1.). Exhibit 3 illustrates how regional population shares are expected to change over the 1984-2011 period on the basis of Scenario A projections.

Table 1, however, indicates that Metro is expected to continue as a centre of employment growth. Approximately 40% of total regional employment growth is expected to occur in Metro. Peel Region is expected to experience a 35% share of total regional employment growth and York Region's share is estimated to be 19% of the total.

Of the Metropolitan employment centres, the Central Area is expected to experience the largest employment increase of 96,500 jobs over the 1984-2011 period. In comparison, employment levels at the North York and Scarborough City Centres are expected to increase 33,300 and 22,200 respectively. Most of this growth in the centres is assumed to be attributable to office employment and the figures illustrate the dominance of the Central Area in terms of the absolute amount of office employment growth. Exhibit 4 illustrates how regional employment shares are expected to change over the 1984-2011 period on the basis of Scenario A projections.

The Scenario A population and employment projections suggest a continuing imbalance in the regional pattern of population and employment distribution. To a large extent employment increases in Metro will have to be met by the expanding population and labour force of the surrounding region and increases in cross-boundary commuting will inevitably result under this Scenario. Metro's labour force is expected to marginally decline after 1996 following the expected stabilization of the female labour force participation rate in the early 1990's and the general aging of the Metro population.

Table 1
Population and Employment Forecasts
For Selected Toronto Areas

	POPULATION				EMPLOYMENT			
Area	1984	2011	Change	% Change	1984	2011	Change	% Change
P.D. 1	112,347	141,700	29,353	26.1%	361,843	458,300	96,457	26.7%
N.Y. C.C.	9,819	23,200	13,381	136.3%	17,618	50,920	33,302	189.0%
Scar. C.C.	0	3,258	3,258	n/a	13,000	36,228	23,228	178.7%
Rest Metro	2,015,275	2,079,242	63,967	3.2%	753,151	956,627	203,476	27.0%
Subtotal	2,137,441	2,247,400	109,959	5.1%	1,145,612	1,502,075	356,463	31.1%
Ajax/Pick.	63,229	126,000	62,771	99.3%	21,510	51,300	29,790	138.5%
York	231,855	616,000	384,145	165.7%	101,700	271,000	169,300	166.5%
E. Halton	139,030	288,900	149,870	107.8%	46,400	91,800	45,400	97.8%
Peel	490,731	1,119,998	629,267	128.2%	261,425	549,994	288,569	110.4%
Total	3,062,286	4,398,298	1,336,012	43.6%	1,576,647	2,466,169	889,522	56.4%

Sources: Exhibit C.2 Metro Network 2011 Report & Tables 1 and 2 of "Network 2011: Scarbourough's Response"

Notes

1. P.D 1 is aproximately the same as the Central Area.
2. 1983 population figures are used for the City Centres.
3. Population and Employment figures are based on land use Scenario "A" projections.
4. The areas above do not represent the Greater Toronto Area(GTA) which includes all of Halton, Durham, and Hamilton/Wentworth.

Exhibit 1: Forecasted 2011 Population

By Selected Toronto Areas

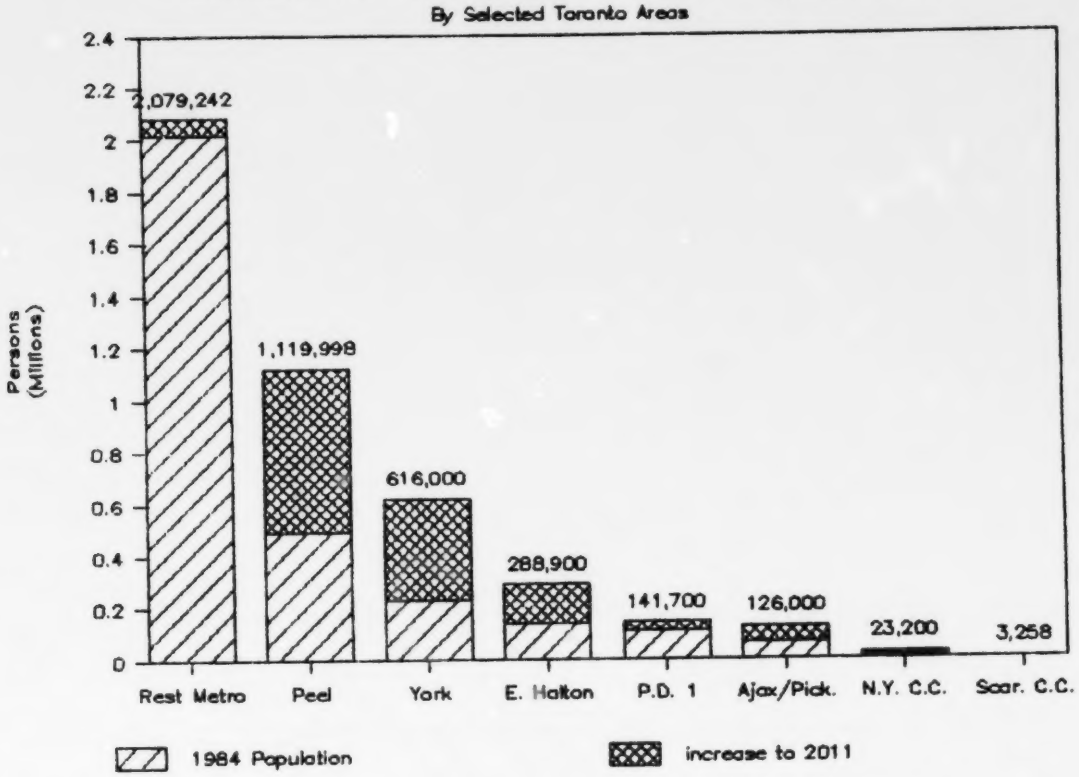


Exhibit 2: Forecasted 2011 Employment

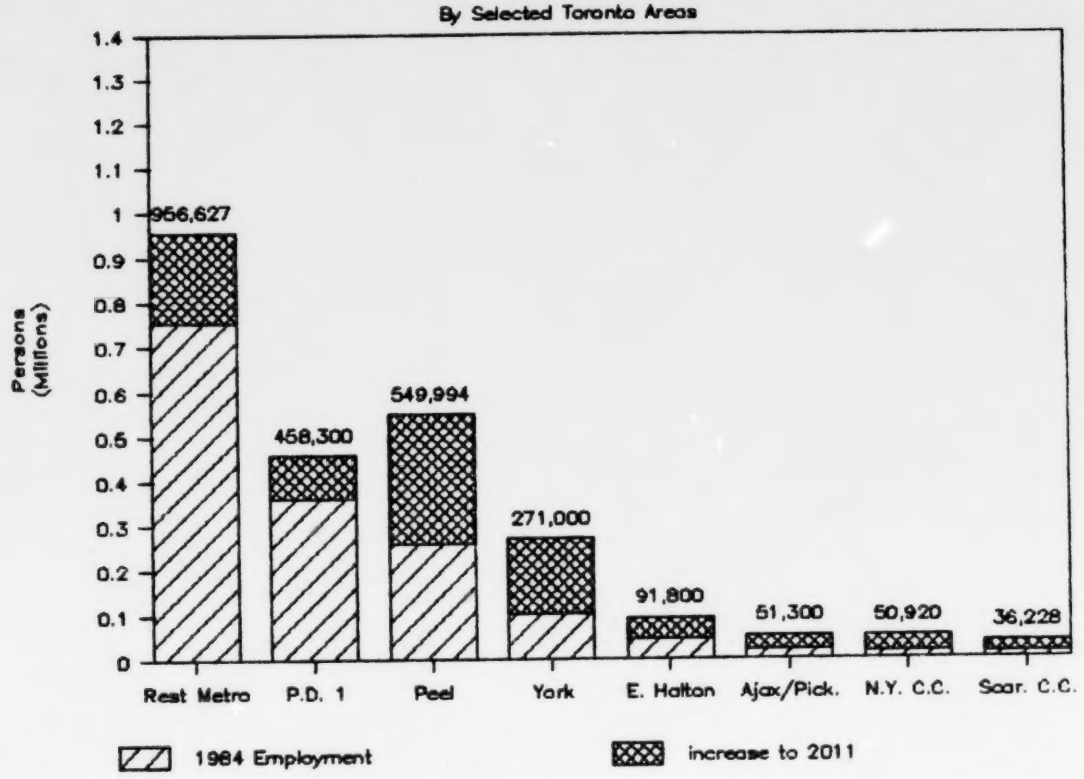


Exhibit 3: 1984 Population Share

By Selected Area

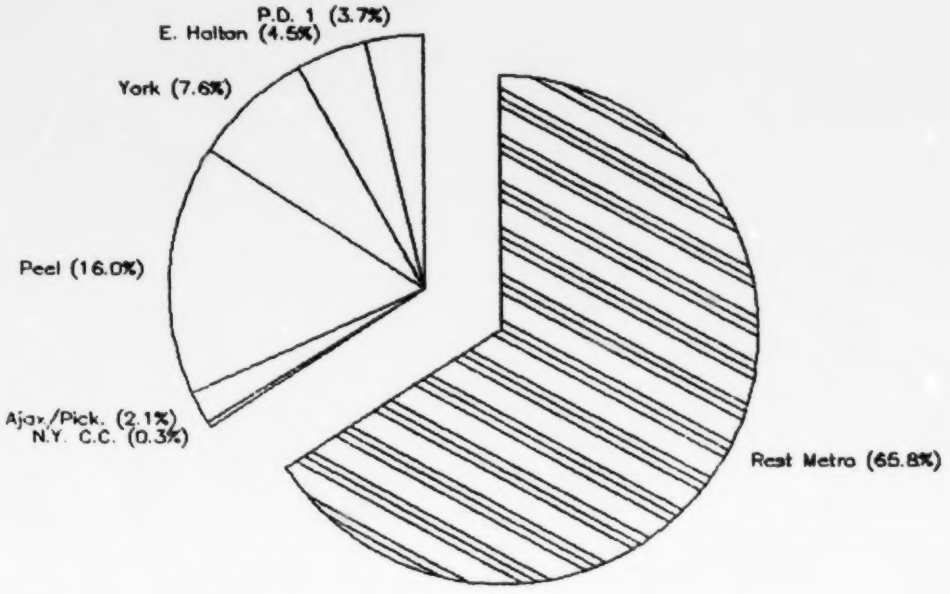


Exhibit 3: 2011 Population Share

Forecast By Selected Area

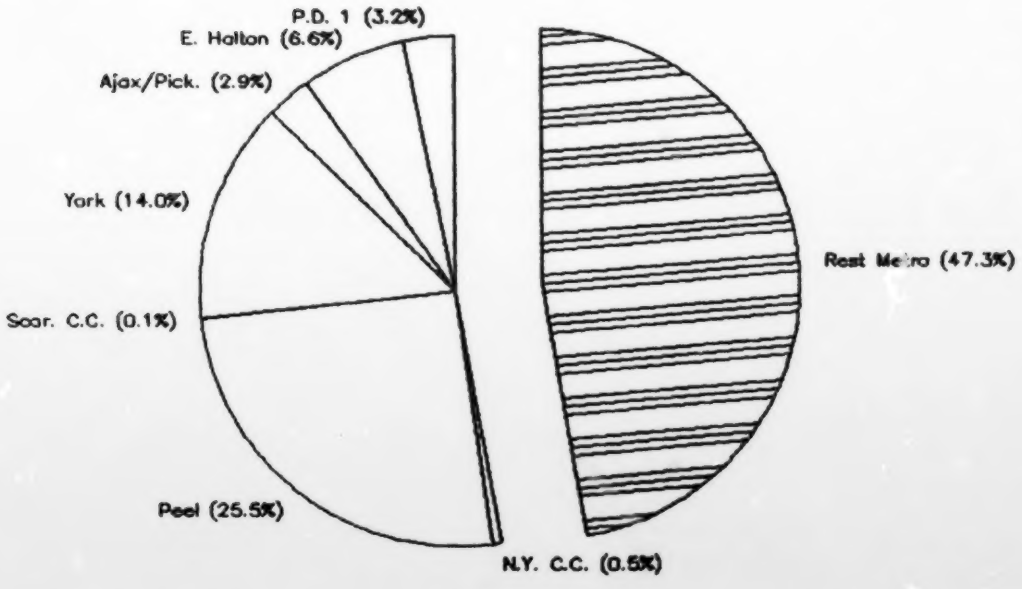


Exhibit 4: 1984 Employment Share

By Selected Area

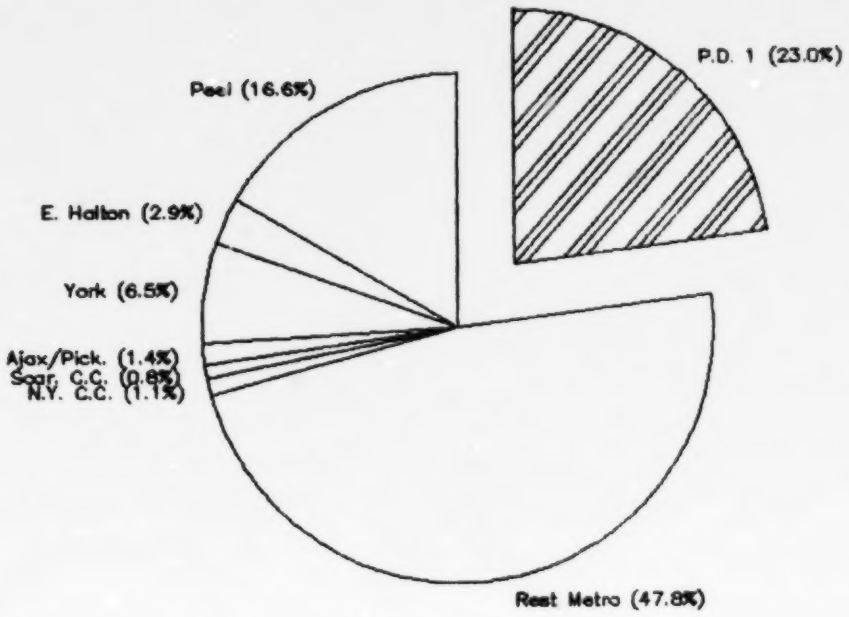
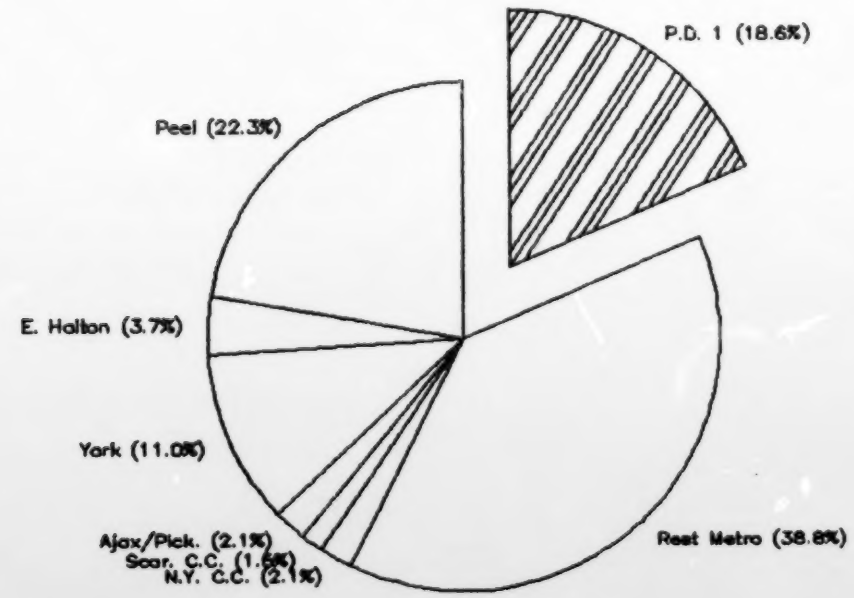


Exhibit 4: 2011 Employment Share

Forecast By Selected Area



Subsequent to the publication of the Network 2011 report, the Metro Planning Department produced revised population and employment forecasts for the year 2011. The net effects of these revisions have been to lower the total regional population and employment forecasts by 260,000 (-6%) and 200,000 (-8%) respectively. However, within this pattern of overall reductions, Central Area population projections have been increased substantially by a further 40,000 and the original 96,500 employment increase (1984-2011) raised to 109,000. These new figures reflect revisions in the anticipated rates of residential and commercial developments in the Central Area. In the case of Peel Region, however, employment growth over the 1984-2011 period was reduced by 78,000, resulting in the original 289,000 employment increase being reduced to 211,000 in the revised figures. These revisions, as explained more fully later, are anticipated to result in the Central Area drawing an increased share of its labour force requirements from the surrounding Regions or within the Central Area itself, with very little increase from the remaining area of Metro.

The Metro Planning Department's revised figures are presented in Appendix 1 in Table A1 and Exhibits A1 to A4 in a similar format to that of the Scenario A projections presented above.

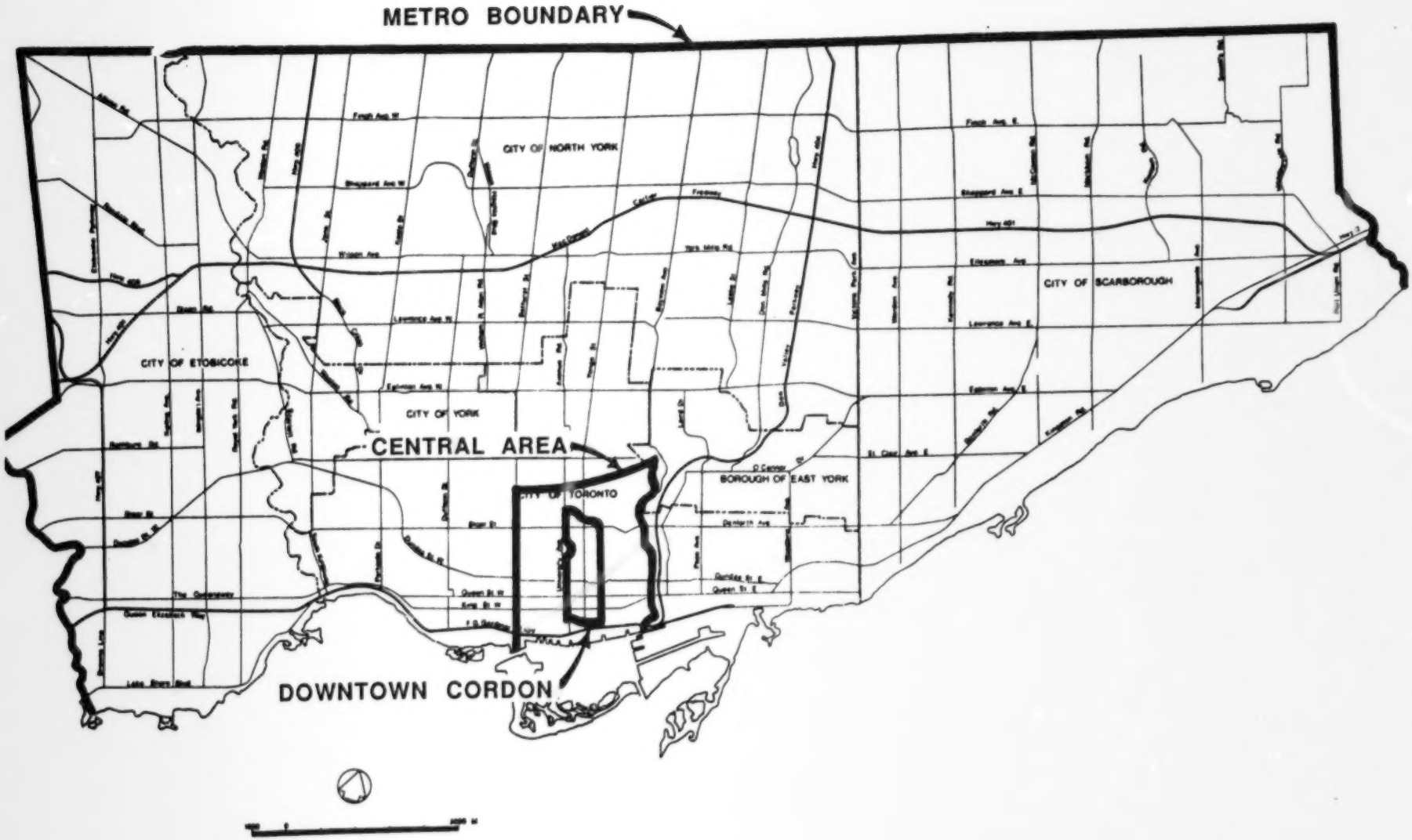
4.2 Travel Patterns

As might be expected from the discussion above, cordon count data for the 1975-85 period indicate that trip increases have been much greater at the Metro boundary than at the Central Area and Downtown boundaries or cordons. These three cordons are illustrated on Map 2. Figures for these cordons for the 7:00 - 9:00 a.m. inbound movements are presented in Tables 2, 3 and 4 and illustrated in Exhibits 5, 6 and 7.

It can be seen from these data that over the 1975-85 period the total volume of inbound, peak-period person trips has increased by 92% at the Metro boundary, compared to an increase of only 10% and 20% at the Central Area and Downtown cordons respectively. Table 5 provides data on person crossings at the Metro boundary for the separate west, north and east screenlines.

From Table 5 and Exhibit 8 it can be seen that large trip increases have been experienced at the west and the north screenlines over the 1975-85 period. Most of these increases in inbound person trips at the Metro boundary have been by auto, though overall the percentage of trips by auto has decreased slightly from 86% to 82% over the 1975-85 period.

Census journey-to-work data for the 1971-81 period confirm the trends of the cordon figures. Over the 1971-81 period, the total



MAP 2
TRAFFIC COUNT CORDONS

CITY OF TORONTO PLANNING AND DEVELOPMENT DEPARTMENT
STEPHEN G. McLAUGHLIN - COMMISSIONER

Table 2
Inbound Person Trips Crossing
The Metro Boundary Cordon
7-9 a.m. Peak Period

Year	Auto /Taxi	Transit	Go Rail	Total
1975	77,779	5,409	6,841	90,029
1977	98,206	8,802	8,679	115,687
1979	104,806	7,779	10,680	123,265
1981	123,993	11,325	13,805	149,123
1983	129,653	11,998	15,142	156,793
1985	142,827	13,721	16,827	173,375

Table 3
Inbound Person Trips Crossing
The Central Area Cordon
7-9 a.m. Peak Period

Year	Auto /Taxi	Transit	Go Rail	Total
1975	79,506	125,225	9,456	214,187
1977	82,025	128,425	11,807	222,257
1979	88,980	123,886	15,446	228,312
1981	80,034	147,352	19,441	246,827
1983	82,034	142,026	20,555	244,615
1985	82,735	130,944	22,610	236,289

Source: Metro 1985 Cordon Count Program

Table 4
Inbound Person Trips Crossing
The Downtown Cordon
7-9 a.m. Peak Period

Year	Auto /Taxi	Transit	Go Rail	Total
1975	46,364	137,393	8,958	192,715
1977	46,925	131,899	11,807	190,631
1979	48,091	131,029	15,446	194,566
1981	48,498	157,218	19,441	225,157
1982	45,371	150,311	20,086	215,768
1984	52,787	156,449	22,042	231,278

Source: Metro 1985 Cordon Count Program

Table 5
Inbound Person Trips Crossing
The Metro Screenlines
7-9 a.m. Peak Period

Year	West	North	East	Total
1975	50,402	29,965	9,662	90,029
1977	64,218	36,754	14,715	115,687
1979	68,683	38,861	15,721	123,265
1981	82,168	49,903	17,052	149,123
1983	82,175	55,778	18,840	156,793
1985	87,942	65,872	19,561	173,375

Source: Metro 1985 Cordon Count Program

Exhibit 5: Metro Boundary Cordon Trips

Inbound Trips For 7–9 A.M. Peak Period

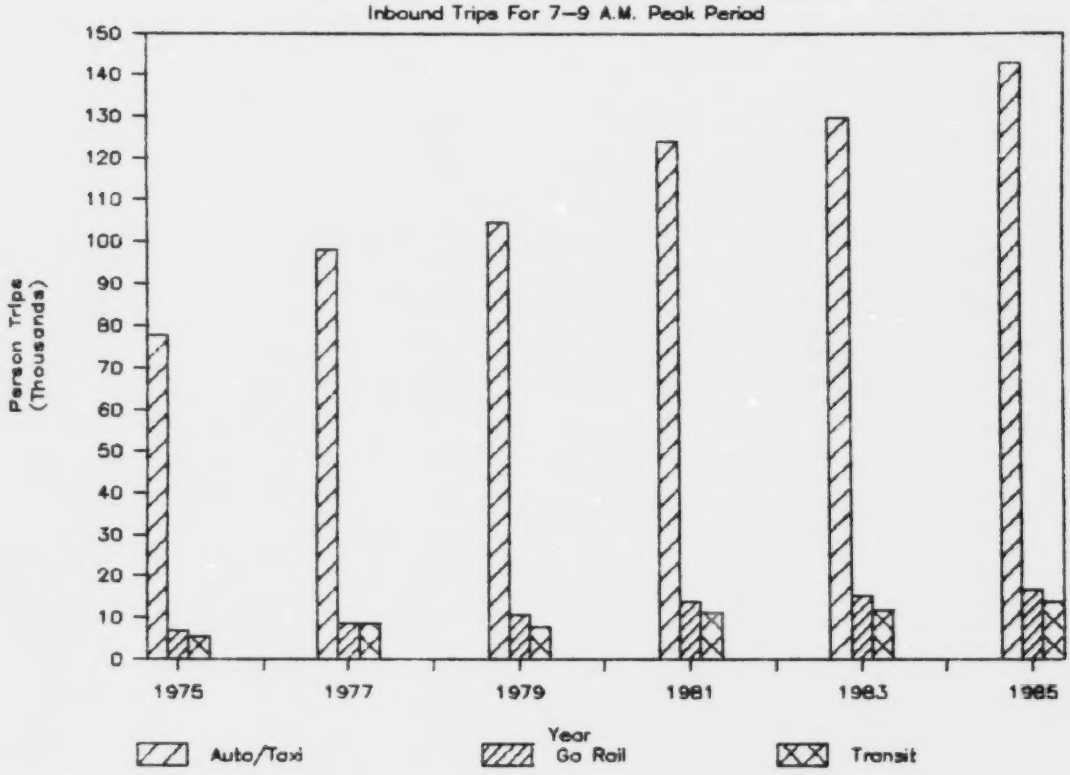


Exhibit 6: Central Area Cordon Trips

Inbound Trips For 7–9 A.M. Peak Period

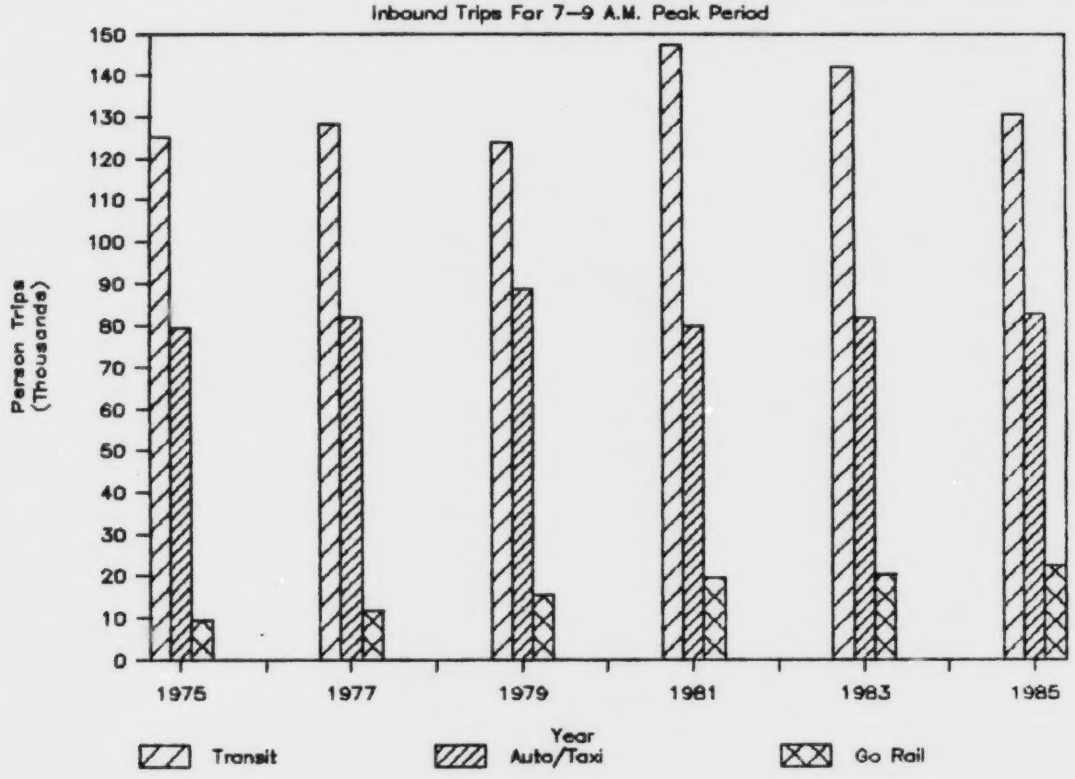


Exhibit 7: Downtown Cordon Trips

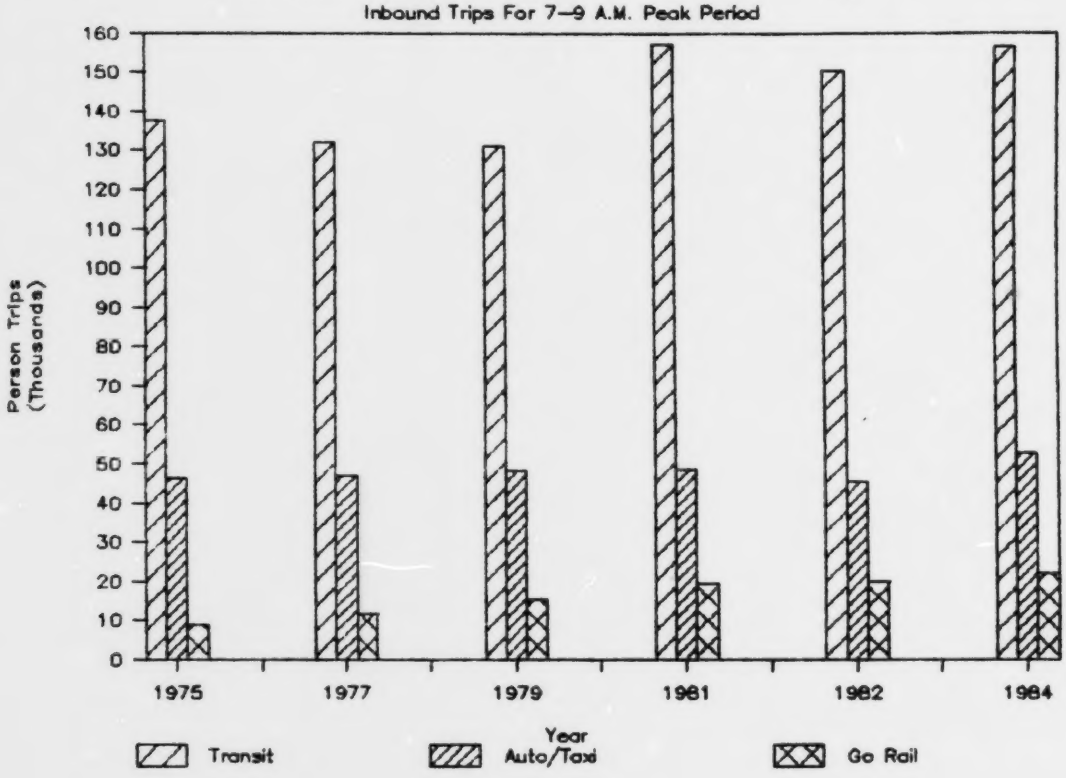
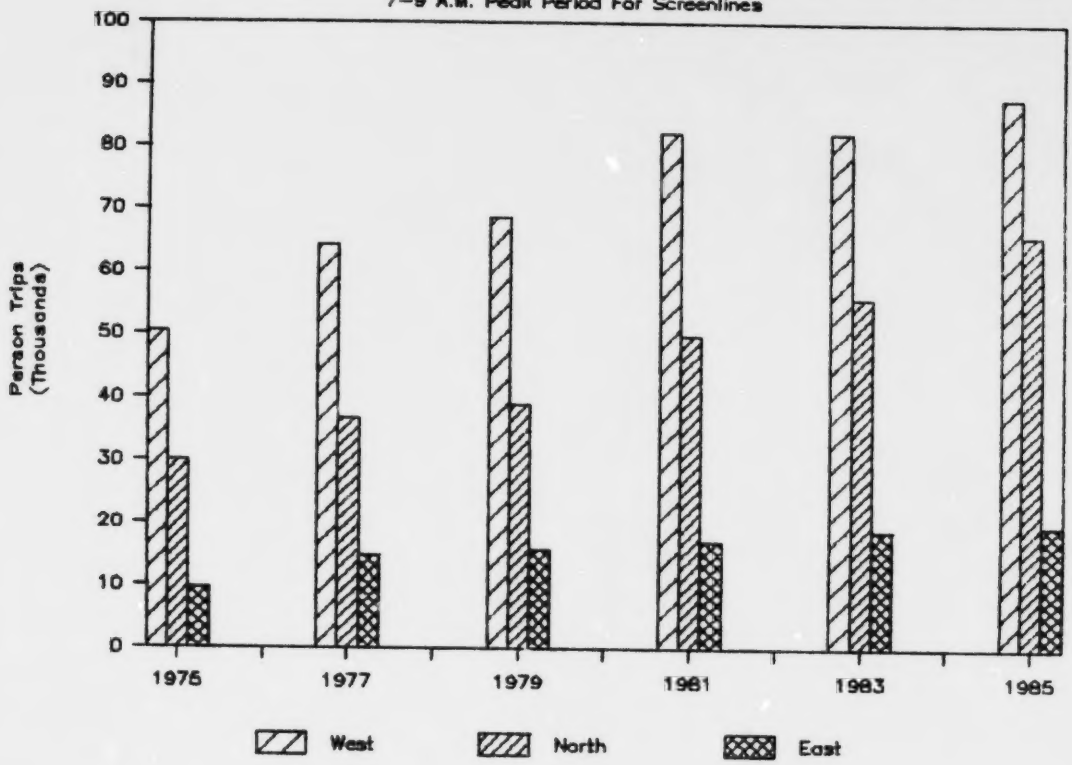


Exhibit 8: Inbound Metro Boundary Trips

7-9 A.M. Peak Period For Screenlines



number of work trips to Metropolitan Toronto from the surrounding regions increased by about 124,000, a more than doubling. As a result, the average length of work trips in Metro increased 15% from 10.2 km to 11.8 km during the ten-year period. In 1971, over 90% of those working in the Central Area lived within Metro Toronto but by 1981 this proportion had dropped to 86%.

To some extent, the growing population and employment imbalance in Metropolitan Toronto has been partly offset in the past by an increase in the labour force participation rate. For example, between 1971-1981 Metro's population increased by only 48,000 while the Metro labour force increased significantly by 180,000. However, in the future, with the stabilization of the female labour force participation rate, both Metro's population and labour force are expected to experience little growth and may even marginally decline by the year 2011.

The future population and employment projections described above can only be expected to reinforce the past trends in increased inter-regional commuting and the lengthening of the average work trip. For example, planning staff of the Region of Peel have predicted that a.m. peak-hour eastbound person trips at the Peel-Metro boundary will more than double from the 1985 level of 53,000 to 110,000 by the year 2011. In this context, it is difficult to understand why the Network 2011 study process largely ignored the inter-regional commuting issue and the value of the study findings and recommendations have to be questioned in view of this neglect.

Also, of course, any long-term projections of population and employment and associated trip increases have to be interpreted with caution. Population and employment projections are replete with assumptions ranging from birth rates, death rates, migration patterns, labour force participation rates, household formation rates to many economic factors over which planners have little or no control. When these projections are then translated into estimates of travel demand for a given transportation network, the task of interpretation is made even more difficult because of the overlaying of yet another set of assumptions regarding individual preferences for travel mode, route choice and time of travel.

Consequently, Network 2011 is an ambitious attempt to forecast Metro's rapid transit requirements over the next thirty years. Like all such thirty-year plans, Network 2011 cannot be interpreted as a rigid blueprint for the future but must be viewed in a more flexible manner as presenting a planning strategy that is open to review and modification. The Network 2011 report includes provision for five-year reviews of the planning strategy and this need to monitor and carefully re-assess rapid transit plans on an ongoing basis needs to be emphasized. The five-year reviews should be of a comprehensive nature and not merely

confined to staging and technology choices among the three recommended lines proposed in the current Network 2011 strategy. Such reviews should be a part of the general five-year review process for the whole Metropolitan Official Plan.

Indeed, it is recommended that the 5-year review process included in Network 2011 become a formalized procedure which incorporates the establishment of a Technical Committee with planning representatives from the Province (MTC), Metro, TTC, and the surrounding Regions and Area Municipalities. Such a committee could provide a forum for ongoing debate and discussion of regional transportation issues and enable the 5-year reviews to be undertaken in a more comprehensive assessment framework.

4.3 The Inter-Regional Issue

Although trip increases have been greatest at the Metro boundary, where over 80% of peak period trips are by auto, Network 2011 focusses on rapid transit solutions within Metro. The majority of inter-regional trips originate in low density residential areas and have a very dispersed pattern of destinations in Metro. For example, only 30% of existing cross-boundary trips from Mississauga are destined to the Central Area and the remaining 70% are dispersed throughout other parts of Metro.

Given the pattern of low density development in the suburbs and the dispersed nature of cross-boundary trips, it is difficult to see how purely transit solutions (especially involving lines that do not cross the Metro boundary) will solve the inter-regional commuting problem. In this context, more attention must be given to improving inter-regional GO Transit services and identifying possible increases to the capacity of the suburban arterial road system.

In terms of increasing the attractiveness of transit for inter-regional commuting trips, there would be considerable benefits in integrating the fare and service structures of the TTC and GO Transit systems. For example, the existing separate fare system limits the attractiveness of taking GO-transit to the Central Area for those working beyond walking distance of Union Station.

Also, the lack of a regional planning framework makes the inter-regional commuting problem even more difficult to solve. There is a clear need for the Province to play a stronger role in the effective co-ordination of land use and transportation planning at the inter-regional level.

4.4 The Sub-Centres Policy

As Table 1 and Ex. 4 point out, the Scarborough and North York City Centres, when seen in context, represent only a small portion of regional employment growth and their associated transportation requirements have to be viewed in this perspective. In absolute terms, the Central Area remains by far the largest centre of existing and future employment growth. Table 6 below compares the employment growth projections for the Centres and the associated increases in transit demand based upon the trip-making assumptions used in the Network 2011 report.

TABLE 6: EMPLOYMENT AND TRANSIT TRIP GROWTH AT THE CENTRES - 2011

	North York Centre	Scarborough Centre	Central Area
Employment Increase 1984 to 2011	33,300	23,200	96,500
Daily Attendance (90%)	30,000	20,900	86,900
Transit Modal Split			
Target	60%	55%	90%
(Existing)	(20%)	(10%)	(75%)
#	18,000	11,500	78,200
Peak Hour Transit Trips X.55	9,900	6,325	43,010

Source: developed from Network 2011, Ex. C. 2.

Further, it must be recalled that much of the future regional employment growth will continue to be dispersed (e.g. 35% of regional employment growth over the 1984-2011 period is forecast to be largely dispersed throughout Peel/E. Halton Regions alone - see Table 1). Focussing transportation investment funds exclusively on serving the sub-centres may be of little benefit to the wider areas where the majority of trip growth will occur.

It is recognized that using investments in transit to support the sub-centres is an appropriate strategic planning policy, but it is still reasonable to question the acceptable amount and form of

such investments. There is the anomaly that, while it seems more certain that if the Relief Line is built first it would stimulate the growth of the Central Area and detract from future sub-centre growth, it is less certain that giving transit priority to the sub-centres will necessarily assure their growth. As noted above, the scale of sub-centre development does not appear to warrant the immediate need and cost for subway capacity. Both the Scarborough and North York Centres are already on rapid transit lines and, in the case of North York Centre, road capacity might prove more of a constraint to future development than concerns over transit access.

4.5 Cost and Affordability

The Network 2011 program requires an average capital expenditure rate of $97 million a year on rapid transit facilities over a 28-year period. From a Metro point of view this is claimed to be affordable (assuming the current 75% Provincial subsidy) and is consistent with Metro's historical pattern of expenditures on subway expansion in the 60's and 70's. However, there has been no indication from the Province that it is prepared to fund 75% of the capital costs of Network 2011. The Province may have other priorities for transportation expenditures that reflect wider, regional concerns (e.g. expanding GO-transit services or completing Highway 407 across the north of Metro).

Some recent experiences also suggest that even the "Metro affordability" assumption may appear questionable. With respect to transit operating costs, the TTC in a recent report expressed considerable concern over a letter from the Provincial Ministry of Transportation and Communications indicating that the Province may allow its share of operating subsidies to decline from 16% to 13.75% of total costs. Also, this year Metro has been required to increase its portion of road maintenance costs as a result of limits on Provincial funding.

The need for Metro to fund rapid transit investments at the same high rate as it did during the strong growth periods of the 60's and 70's appears questionable. In the future, Metro will experience little change in the size of its population and labour force and faces the prospects of much slower economic growth in the 80's and 90's. It is important that investments in new capital intensive rapid transit lines do not detract from the maintenance of the existing transit system or produce increased costs that are reflected in fare increases.

The current subsidy arrangements encourage the TTC to pursue expansions to the fixed rail system, since the capital cost of these projects are funded entirely by government (75% Province: 25% Metro). On the other hand, the TTC has to contribute 25% to

the cost of new buses which also have relatively high operating costs per passenger. The TTC, in turn, has to cover 68% of operating costs from user revenues (i.e. fares). Consequently, on the basis of these types of accounting costs, rapid transit investments may appear deceptively attractive.

4.6 Public Information Program

The Network 2011 report and accompanying background documents were presented to the Joint Meeting of the Metropolitan Transportation Committee and the Economic Development and Planning Committee on May 29, 1985. At this meeting, the Joint Committee approved, among other things, a recommendation to conduct a public information program to provide the general public with an opportunity to review and comment on the findings and conclusions of the Network 2011 report and the three rapid transit feasibility studies.

A committee representing Metro and the TTC was set up to implement the recommendation and the firm of Marshall Macklin Monaghan chosen to assist in the implementation of the public information program.

Public Information Centres were set up in the six municipal buildings during the week of October 7, 1985. Each centre was open for one day to the public, between the hours of 1:00 p.m. and 9:00 p.m.. Staff from Metro and the TTC were present at all Public Information Centres to answer questions. The public were also asked to provide their comments and to complete a questionnaire.

The locations of the Public Information Centres for the Network 2011 study were as follows:

Municipality	Date	Location
Etobicoke	Wed. Oct. 9	Civic Centre 550 Burhamthorpe Rd.
York	Thurs. Oct. 10	Municipal Offices 2700 Eglinton Ave. W.
Toronto	Tues. Oct. 8	New City Hall (Rotunda)
North York	Wed. Oct. 9	City Hall 5100 Yonge Street
East York	Thurs. Oct. 10	Municipal Offices 550 Mortimer Ave.
Scarborough	Tues. Oct. 8	Civic Centre 150 Borough Drive

Information about the Network 2011 report was also provided through an advertising campaign using car cards placed in all TTC vehicles during the months of September and October. In addition, a four-page information supplement describing the Network 2011 strategy and the three feasibility studies was produced and distributed as an insert in the Toronto Star. The supplement was also mailed to all Council members and interested groups, including Residents Associations.

In addition, a number of presentations of the Network 2011 proposals were made to area municipal councils or committees and special interest groups (e.g. Downtown Business Council).

In November, 1985, the consultant (Marshall Macklin Monaghan) forwarded to the Planning and Development Department the following two documents:

1) a copy of the Public Information Centres - Comment Sheets Report, a compilation of all the comment sheets received from each of the centres; and

2) a copy of the Newspaper Inserts - Written Responses Report, a compilation of the responses received as a result of the newspaper insert.

In terms of the participation at the City of Toronto Public Information Centre, approximately 70 people signed the attendance sheets and 45 people filled out the questionnaire. In addition,

approximately 115 residents of the City of Toronto responded to the newspaper advertisement.

A summary report of the public information program is currently being prepared by the consultant and should be available in the near future. In light of this, no attempt is made here to undertake a detailed analysis of the public comments received. However, based on a cursory review of the material received at the City of Toronto Information Centre and from City residents, the following general observations are offered:

1. there was considerable agreement on the need for additional rapid transit services in general, particularly into the downtown area;

2. there was also a clear sense of urgency for upgrading transit services in general, including the downtown area;

3. some comments identified the need for better inter-regional transit services (i.e. GO-Transit).

5. THE NETWORK 2011 PROPOSALS

The purpose of this section is to review the three proposed lines - Sheppard, Eglinton and Relief. The emphasis will be on the Relief Line, with the pros and cons of the other two lines being briefly discussed. Starting with the Eglinton and Sheppard lines first:

5.1 The Eglinton Line

The principal arguments in support of the Eglinton line can be briefly summarized as follows:

1. It will attract trips from the major growth areas to the west in Peel/Halton Regions.

2. The Network 2011 demand analysis shows that, of the proposed lines, the heaviest peak-point loadings are on Eglinton (18,800 pphpd approaching Spadina subway).

3. The Eglinton line can be designed as an extension of the Mississauga busway that is proposed to run from Square One via Highway 403 and the Eglinton Corridor to Kipling subway station, using Highway 427 as the interim north-south connection from Eglinton to the Bloor subway.

4. With the interim "Kipling connection" from the Mississauga busway, increased pressure will be placed on the Bloor subway line and the St. George transfer point. This will increase the need for the Metro section of the Eglinton line to be built to relieve pressure on the Bloor line and St. George Station, plus make better use of the Spadina line to which it will connect.

5. It is claimed that improving GO-transit services (Lake Shore W., Milton and Georgetown) will only partly solve the west-boundary inter-regional commuting problem as only 30% of these commuters are headed to the Central Area which the GO-lines serve. The other 70% of cross-boundary commuters need the Eglinton line to access dispersed destinations in the rest of Metro.

6. There is little opportunity to increase road capacity at the west Metro boundary and the Eglinton transit line is one of the few options available to address transportation problems at this location.

7. The Network 2011 report implies that the North York and Scarborough Centres and the Central Area can continue to develop till the mid-1990's without major transit

improvements. This has been interpreted to suggest that the Eglinton line could be made first priority.

8. An advantage is that a large part of the required transit right-of-way is already in place along the Eglinton Transportation Corridor which runs between the Metro boundary and just east of Jane Street.

9. The Eglinton line is important in serving reverse flows which GO Transit is unable to serve.

The major concerns related to the Eglinton line can be summarized as follows:

1. The pattern of trips at the west Metro boundary is dispersed over a wide area which may be difficult to effectively serve by a single rapid transit line.

2. There is relatively little redevelopment potential along the route of the Eglinton Avenue line. The planned Etobicoke Centre is located at Kipling/Islington.

3. To work effectively the Eglinton line has to operate as an extension of the larger Mississauga busway proposal. However, to be competitive as an inter-regional facility operating speeds would need to be quite high and station stops limited. Consequently, the line has to be designed primarily as an express route through Metro which limits benefits to local TTC riders and Metro land use planning objectives. The possibility of double-tracking stations (for rail services) or running combined express and local bus services might alleviate this concern.

5.2 The Sheppard Line

The basic arguments in support of the Sheppard Line can be briefly summarized as follows:

1. The Sheppard Line directly supports the development of the North York and Scarborough Centres.

2. It relieves the heavily used Sheppard and Finch bus routes which feed into the Yonge subway and frees up valuable road capacity. The section of the Sheppard Line between Yonge Street and Victoria Park Avenue is particularly important in this respect.

3. Ultimately, the proposed Sheppard Line will connect three rapid transit lines (Spadina, Yonge and Scarborough RT) and

will improve rapid transit access to a large segment of the Metro area.

4. It intercepts ridership from north-south bus routes and the Richmond Hill GO-line and improves accessibility to the growing Region of York.

The principal concerns regarding the Sheppard subway proposal can be summarized as follows:

1. It is expensive to build and the forecast demands (16,200 peak-point, 2011) are somewhat low in relation to the design capacity of subways. It is difficult to justify the extension of the line as a subway all the way to Scarborough City Centre as an immediate, first stage proposal.

2. The demand for peak-period travel between the North York and Scarborough City Centres appears limited and the line seems to function primarily as an indirect inter-regional connection or collector line fed by north-south bus routes from York Region and north-east Metro.

3. The success of the line is very dependent upon the full development of the sub-centres to planned levels, particularly North York. However, the future of the North York Centre is not entirely certain and road capacity limitations might be a more serious constraint to development than transit capacity problems.

4. The Sheppard line connects to the Yonge line and could exacerbate problems to the south at the Yonge/Bloor Station with the result that the need for the Relief Line is accelerated.

5. Both the North York and Scaroborough Centres are already served by rapid transit and there is no immediate need for a Sheppard subway line.

5.3 The Relief Line

5.3.1 The Relief Line Proposal

The Relief Line proposal was analyzed in a series of three reports produced by the joint TTC/Metro "Downtown Rapid Transit Study" (DRT) project team. The three DRT reports are:

a) Report 2.01: Problems and Issues To 2001 (May, 1984);

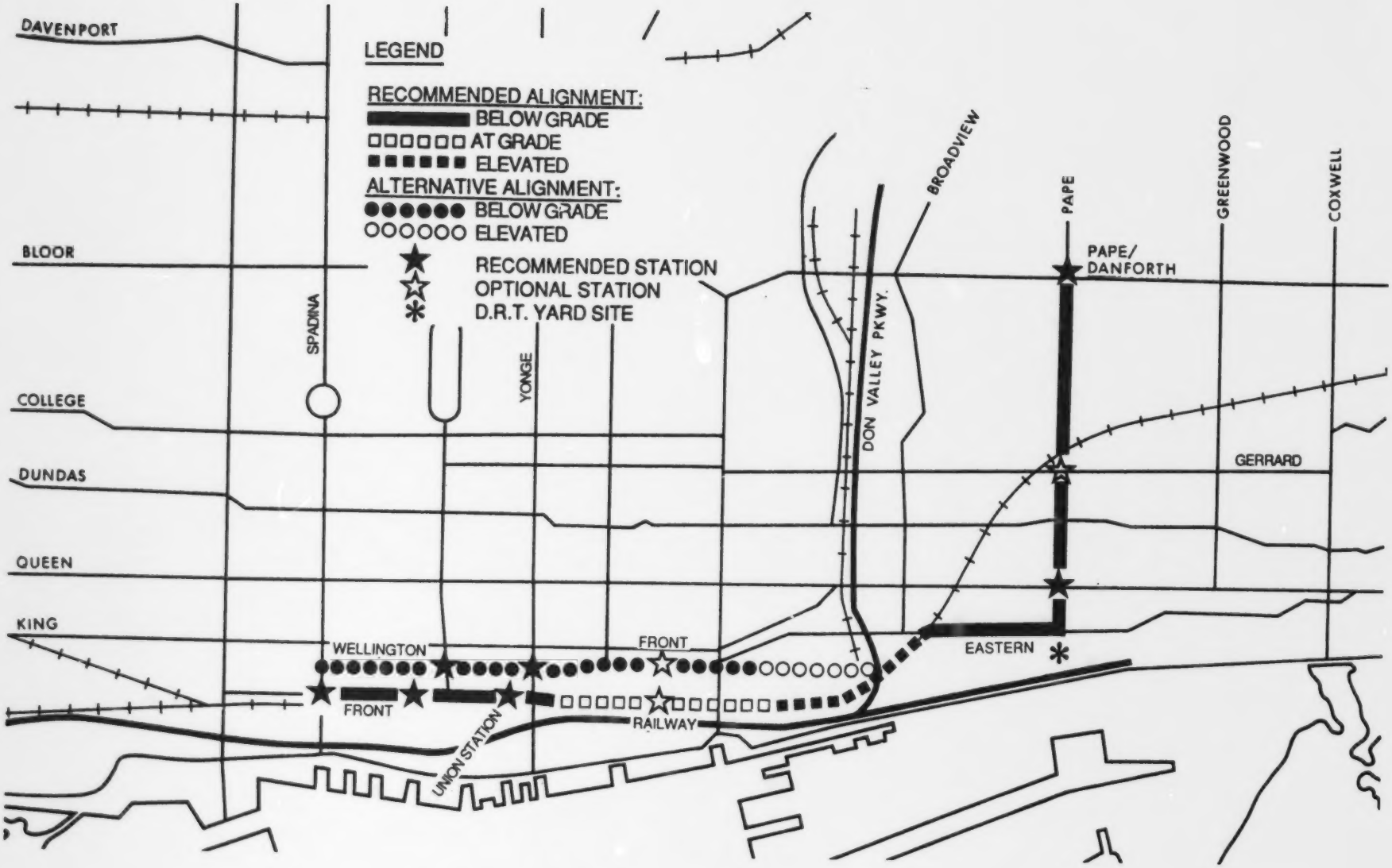
b) Report 2.02: Alternative Solutions: Functional Design & Evaluation (March, 1985); and

c) Report 2.03: Summary Report (March, 1985).

The route of the proposed Relief Line and possible station locations, including the alternative alignment along Wellington and Front Streets through the Central Area, is shown on Map 3. A more detailed plan of the route can be found in "Appendix F: Detailed Plans of Recommended Options" of DRT Report 2:02. The choice of technology (type of vehicle) is not regarded as a major issue at this stage of the planning process. Although an ICTS technology, similar to the TTC's Scarborough RT line, was assumed for costing purposes "... with a limited number of changes in geometry a subway technology could be readily adopted" (Report 2.03, p. 36).

The preferred Front/Railway Corridor route requires the use of the Toronto Terminals Railway (TTR) right-of-way between approximately Bay Street and the Don River and the reconstruction of a Hydro Electric Power Commission high voltage power line. The Wellington/Front route is recommended as an option should it prove difficult to acquire a TTC right-of-way through the rail corridor. Neither route alignments involve significant property acquisitions and no homes are directly threatened by the proposed routes. Where following City streets, both routes would be underground.

Both the preferred and alternative alignments require a vehicle storage yard in the vicinity of Pape and Eastern Avenues. Capital costs (including construction, vehicles and property) for the recommended alignment and alternative alignment are $538 and $546 million respectively, with these costs increasing to $568 million and $548 million if optional stations are built at Gerrard and Sherbourne Streets. These costs are detailed in Table 7 below.



MAP 3

D.R.T. RECOMMENDED ALIGNMENT AND ALTERNATIVE ALIGNMENT

SOURCE: METRO/T.T.C. DOWNTOWN RAPID TRANSIT STUDY EXHIBIT 7.1

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TABLE 7: COST ESTIMATE SUMMARY
OF THE DOWNTOWN RELIEF LINE

	Recommended	Alternative
	Front-Pape Underground	Wellington-Pape
Construction	$407	$416
Vehicles	$108	$108
Property	$ 23	$ 22
Sub-Total	$538 ($33.6M)	$546 ($34.1M)
Options:		
Gerrard Station	$ 19	$ 19
Sherbourne Station	$ 11	$ 19
TOTAL	$568 ($35.4M)	$584 ($36.4M)

Source: DRT Study 2.02 Exhibit 6.2

Notes: 1. Costs for the Front-Pape option include the reconstruction of Union Station.

2. ($ M) Cost figures in parenthesis represent equivalent annualized cost assuming 12% interest rates, 6% inflation, 50 years for amortization of construction and property, and 30 years for vehicles.

3. All costs expressed in 1985$.

The preferred alignment, Front/Railway Corridor (underground), requires the expansion of the subway station and pedestrian facilities at Union Station. The question of transfer movements at Union Station is identified as "critical" in the re-design of the station and a "... need for significant additional pedestrian walkways and circulation facilities is indicated" (Report 2.02, Appendix D, p. 6). It is claimed (see diagrams in Appendix B of Report 2.03) that it is possible to develop a three-platform layout at Union Station to accommodate the Relief Line, though operational details for such a configuration remain to be addressed (Report 2.03, p. 30).

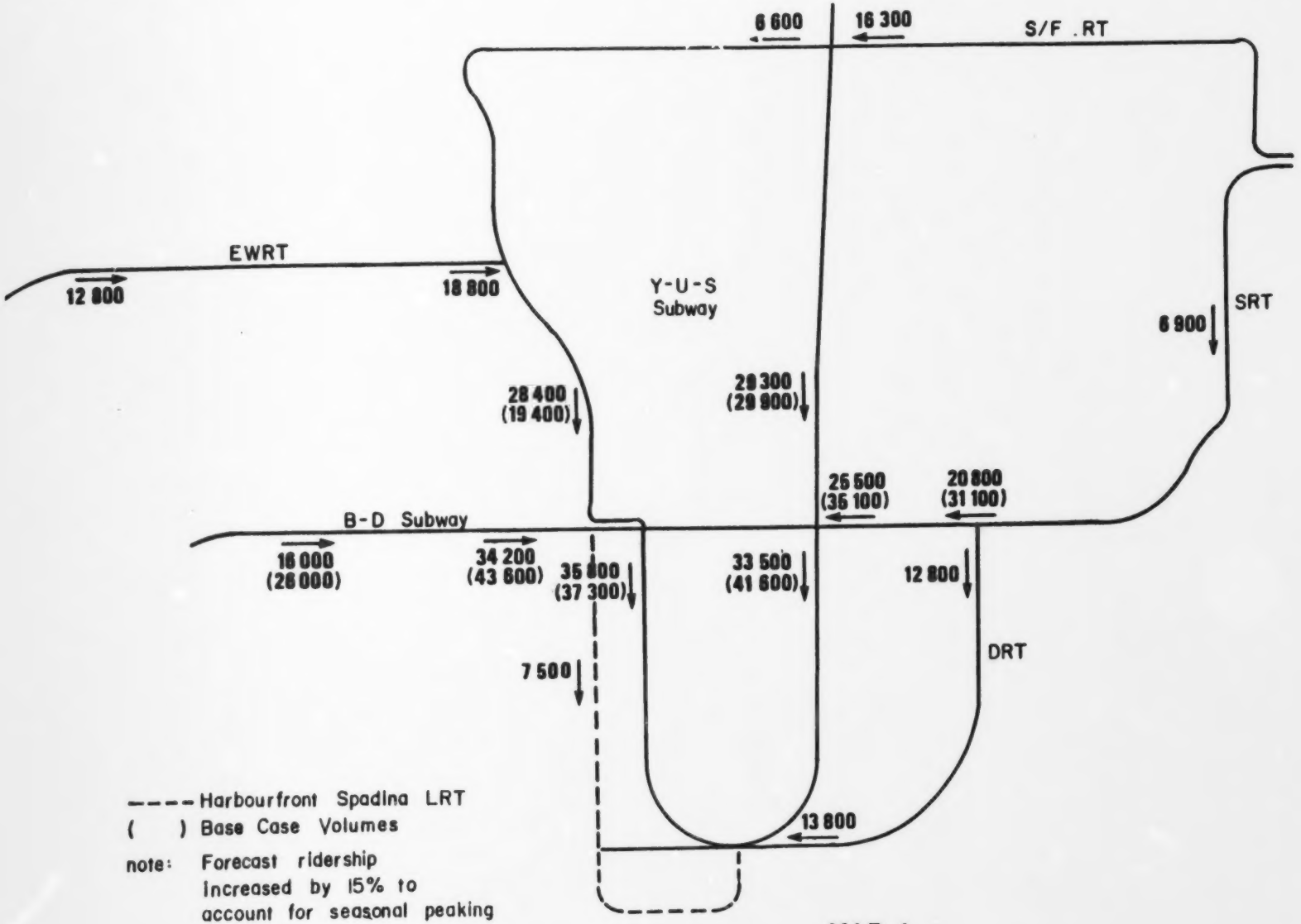
However, the high costs of the underground connection at Union Station for the preferred alignment are partly offset by the fact that the line would be at-grade throughout most of the section in the rail corridor between Union Station and the Don River. On the other hand, the entire length of the alternative option would be underground through the Central Area section of the route beneath Wellington and Front Streets. This underground section of route would cross over the University Subway line and under the Yonge Subway line. The crossing of the University Subway line would displace parking spaces in the underground garage that runs from Front Street to King Street. The Wellington Street alignment will also require a sub-surface easement through Clarence Square.

The principal purpose of the Relief Line is to alleviate future crowding on the Yonge Subway line by reducing transfer movements at the Yonge/Bloor Station bottleneck. The Relief Line is designed to take people off the Danforth line at Pape Station and provide an alternative rapid transit route to the Union Station area of Downtown. The concept of the Relief Line has been discussed extensively in earlier reports (see particularly the January 20, 1983 report of the Commissioner of Planning and Development on the Metro/TTC ARTS Study) and only a brief description of its operational role is presented here.

Based on the system-wide tests conducted for the Network 2011 study, it was concluded that the Relief Line would carry peak-point flows of 13,800 passengers an hour in the year 2011. Map 4 indicates the estimated extent to which the Relief Line would reduce crowding on the Yonge and Danforth subway lines. The figures show that anticipated peak-hour volumes on the Yonge line are expected to be reduced from 41,600 to 33,500 in the year 2011 as a result of the Relief Line; the comparable figures on the Danforth line indicate a reduction from 35,100 to 25,500.

The DRT Study re-assessed the capacity of the existing subway system and established a figure of 34,000 person per hour per direction as the future design figure for the capacity of a subway line. TTC subway count data indicate that volumes in excess of this design criteria have been carried on the Yonge line south of Bloor in the past but not for sustained periods. The record count on the Yonge line is 38,800 passengers per hour, recorded on November 17, 1981. At this level of ridership, the subway is commonly acknowledged to be "crushed".

Appendix E of DRT Report 2.02 summarizes the results of a further level of travel demand analysis conducted by the Metro Planning Department. This "Phase II Analysis", as it is termed, is a more detailed corridor analysis of specific rapid transit alignments in contrast to the more general, system-wide analysis conducted for the Network 2011 report. The Phase II Analysis involved a re-



MAP 4

FORECAST A.M. PEAK HOUR 2011 RIDERSHIP FOR EXPANDED (SYSTEM 3) NETWORK

SOURCE: NETWORK 2011 REPORT EXHIBIT 3.2

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allocation of 2001 Central Area office development growth to reflect the locational impacts of the proposed Relief Line. Also, the average operating speed of the line was increased from 30 km/h to 40 km/h. The Phase II Analysis significantly increased estimated ridership on the Relief Line. The only figures reported are for the year 2001, but by this time peak-point ridership is estimated to have already risen to 15,700 passengers per hour. Included in the analysis is an attempt to identify the riders assigned to the peak westbound link of the Relief Line between Sherbourne and Union Stations. The results of this assignment are shown in Map 5.

From Map 5, it can be seen that 58% of the trips to Union Station and beyond are estimated to originate from Pape Station, either as transfers from the Danforth line (45%), buses (10%) or walk-ins (3%). The remaining 42%, however, board at points from which "relief" is not really sought (i.e. directly or from the walk-in catchment areas of the Gerrard and Queen streetcars, or walk-in to the Sherbourne Street Station). Consequently, over 40% of Relief Line trips appear to be made up of riders who place no demands on the Bloor/Yonge interchange that the line is designed to relieve.

5.3.2 The Priority and Need for the Relief Line

In our view, the position put forward in the Network 2011 report, that the Relief Line be of second priority and subject to further review in 1992,is acceptable. However, this does not imply that the choice of the first priority line is a matter of indifference. The development of any new rapid transit line in the Metro area will have impacts on the City of Toronto and the City's interests in these matters should be protected.

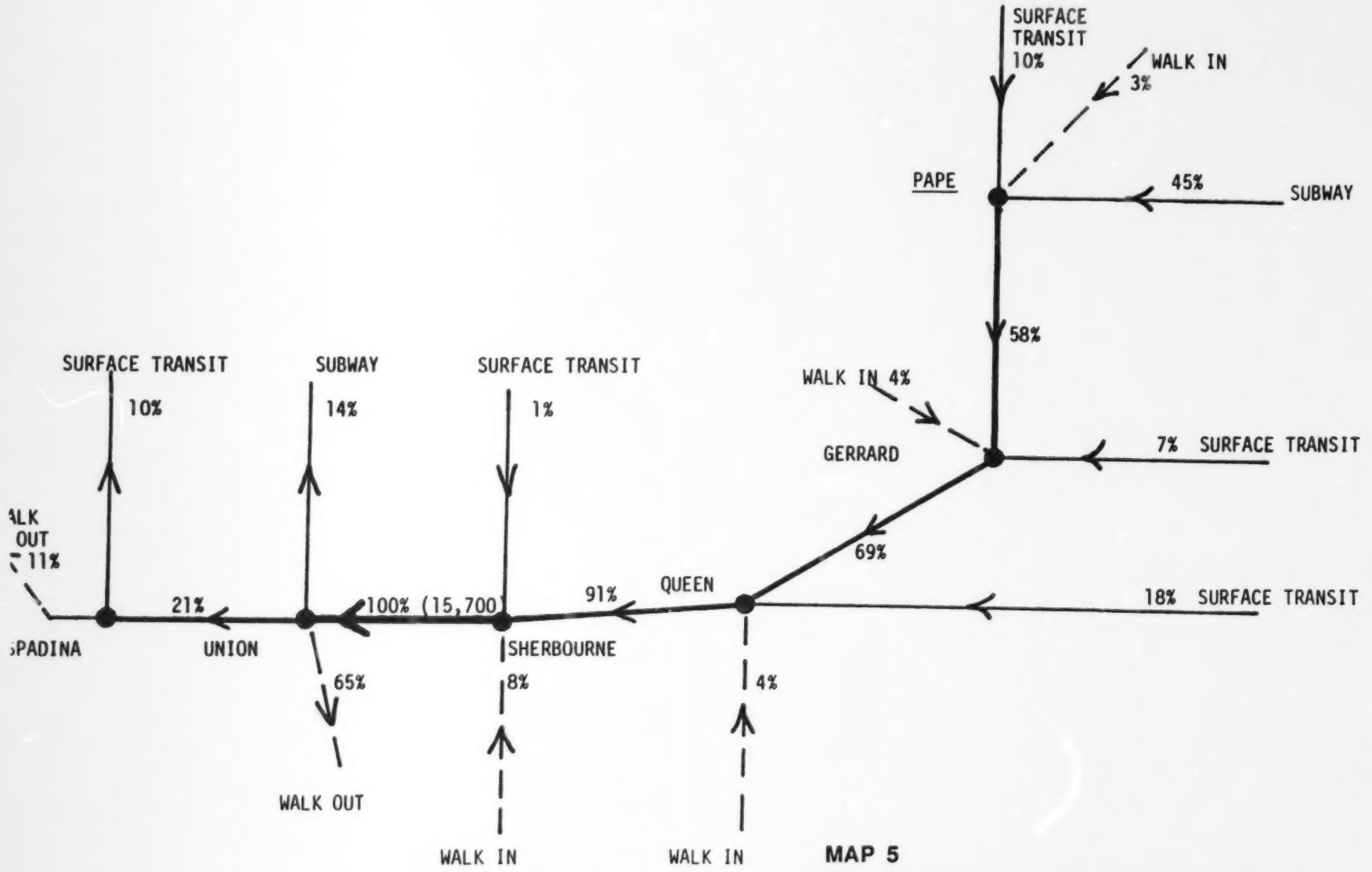
Acceptance of the second priority status of the Relief Line is based upon three major considerations:

a) support for the ongoing process and policy of deconcentration;

b) re-assessment of the rate of office employment growth in the Central Area; and

c) the availability of interim (and possible long-term) alternatives to the Relief Line, in particular incremental improvements to GO-transit.

5.3.2(a) The Policy of Deconcentration - The most general argument against the immediate pursuit of the Relief Line, regardless of whether it is needed or not, relates to the Metropolitan land use policy of encouraging the deconcentration of office employment to planned suburban centres of high transit accessibility. The two major suburban, office employment sub-centres designated in the



MAP 5

DISTRIBUTION BY ACCESS AND EGRESS STATION AND MODE OF TRIPS ON SHERBOURNE - UNION LINK

SOURCE: D.R.T. REPORT 2.02, APPENDIX E

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Metropolitan Official Plan are the North York City Centre and the Scarborough City Centre.

The process of deconcentration is already underway in Metro. The Scarborough and North York City Centres are established and expanding nodes of office employment. As the DRT Report 2.01 points out, the proportion of Metro office employment growth in the Central Area has been steadily declining. Over the last fifteen-year period, 46% of new office employment is estimated to have located in the Central Area, but within the latest five-year period this average figure has fallen to 27%. There are indications (as discussed below) that this proportion is likely to continue falling.

However, the Central Area contains the development potential to accommodate significant increases in office employment as illustrated in Table 6. If priority is given to the construction of a new Downtown rapid transit line this could signal the return to a pattern of centralized growth and accelerate the rate of Central Area development at the expense of the suburban sub-centres. At this stage, it seems unlikely that the sub-centres could withstand such competition from the Central Area and it is important, therefore, to ensure that Metropolitan transportation policy decisions support and strengthen the development of the emerging sub-centres. This is not to say that the transportation needs of the Central Area should be neglected but, where possible, incremental improvements to the Downtown transportation system should be pursued and the maximum resources possible made available to improve access to the sub-centres and stimulate their growth. The trend towards deconcentration is evident and the aim should be to reinforce it.

As the consultant report on Network 2011 prepared for the City of Scarborough points out:

> "besides considerations of need, there is also the question of impacts that can be expected to occur as a result of constructing or not constructing one or another of the major rapid transit facilities included in the Network 2011 proposals. There is little doubt that early construction of the Downtown Relief Line, in spite of its questionable need, would act as a stimulant for more office development in the Central Area, while at the same time it would have the effect of slowing down the growth of suburban centre development. Thus the early introduction of the Downtown Rapid Transit Line would set into motion a development trend that contradicts the stated

Metro policy favouring suburban centre development." (p. 9, Appendix 2, City of Scarborough's Response to Network 2011)

5.3.2(b) The Rate of Central Area Employment Growth - As the DRT Report 2.03 points out, "the single most important factor influencing downtown transportation policies over the next two decades will be the demand for transportation generated by work trips to downtown offices" (p. i). It is the rate of employment growth that will essentially dictate the need, timing and form of improvements to the Downtown transportation system. Apart from the actual amount of employment increase, it is also useful to know, for transportation planning purposes, something about the type of jobs that are increasing, where those who occupy them live and their likely travel habits.

However, experience has proven that it is difficult enough to count the employment we already have in Metro and projections of aggregate employment increases have varied widely. The projections become even more uncertain the smaller the study area and the greater the detail required. Table 8 lists some of the recent office employment projections that have been made for the Central Area.

TABLE 8: CENTRAL AREA OFFICE EMPLOYMENT PROJECTIONS

Source	Increase	Comments
1. Metro/TTC "ARTS" (May '82)	60,000	addit onal office workers in Central Area 1979-91
2. Metro CWTS (May, '83)	95,000	additional office workers south of Queen Street 1981 - 2006 approx.
3. City Response to CWTS (Oct. '83)	120,000	additional office workers in all of Central Area 1983 - 2008 approx.
4. DVCTS Study (July ' 83)	65,500	total employment increase in all of Central Area 1981 - 2001
5. Woods-Gordon (May '84)	38,000 to 76,000	additional office workers in all of Central Area 1981 - 2001
6. GO-ALRT Scenario A (May '84)	96,400	total employment increase in all of Central Area 1981 - 2011
7. Revised Metro (Nov. '84)	108,900	total employment increase in all of Central Area 1981 - 2011
8. Tranplan (Jan. '86)	60,000	total employment increase in all of Central Area 1981 - 2011

Notes:

ARTS - Accelerated Rapid Transit Study

CWTS - Central Waterfront Transportation Study

DVCTS - Don Valley Corridor Transportation Study

Woods-Gordon - estimate prepared for DRT Study

Tranplan - estimate provided for sensitivity analysis for City of Scarborough's report.

It can be seen from Table 8 that there is a considerable range in the estimates of future employment growth in the Central Area. Generally, these employment estimates are developed from one of two basic methods. One method is based on estimates of commercial floor space development. This land use method is sometimes referred to as the "bottom-up" approach. The other method is based on demographic trends (e.g. population and labour force growth), sometimes combined with economic factors (e.g. unemployment rates, structural shifts) and is often referred to as the "top down" approach.

At the small-scale, there is a tendency to use the bottom-up, land use forecasting method which relies on a local knowledge of development opportunities and potential. Floor space estimates are converted to employment and then trip estimates by a series of standard assumptions relating to floor space per worker (FSW) ratios, absenteeism and peaking factors, etc. There seems to be a tangible quality about known development proposals and an apparent inevitability about the realization of employment forecasts based upon them that is understandably appealing to forecasters. However, bottom-up forecasts usually produce employment projections which, in the aggregate, exceed those derived from the top-down approach. Local estimates of development potential are usually optimistic and tend in aggregate to produce unachieveable employment levels at the area-wide scale.

For example, the CWTS estimates in Table 8, which are among the highest projections, are based on estimates of Central Area development potential. The 120,000 increase in office employment developed by City planning staff was based upon an exhaustive listing of all known Central Area office development proposals which, in 1983, totalled approximately 3.4 m. sq. m of floor space. This total represented close to the full remaining office development potential of the Central Area and, in retrospect, can be seen as representing a high employment growth estimate that presents, from a transportation planning point-of-view, a "worst case" scenario.

There is increasing evidence to question these projections of high rates of Central Area office employment growth which are based upon the expected future rate of commercial development and past relationships between floor space, employment and trip growth. At the most general level, there are indications that the economy as a whole is slowing down and that the 80's and 90's will not see the sustained levels of rapid growth experienced in earlier decades. The 1981-3 economic recession may not have just been a temporary economic downturn but may have been the initial shock in the transition to a long-term period of generally slower growth and job creation.

When examining the office sector, in particular, there are certain structural and technological changes taking place in the economy that may lend further credence to the idea that office employment growth may be slowing down. In the Central Area in the 1960's and 1970's, it appears that the office sector was the major engine of employment growth, providing new jobs at a rate more than fast enough to offset employment losses in the City's manufacturing and warehousing sectors with the result that net employment gains were experienced. Unfortunately, there is no reliable employment data for the period before 1980 to accurately measure these changes in the structure of the City's employment mix. However, accurate Central Area floor space data extends back to 1975, cordon counts giving information on traffic flows extend back even further and employment and journey-to-work data are available from the census counts of 1971 and 1981. From these sources, some interesting observations on the 1971-85 period can be drawn.

Table 3 provides data on the pattern of inbound person trips crossing the Central Area Cordon during 7:00 - 9:00 a.m. over the period 1975-85. Exhibit 9 illustrates the growth in office floor space built over the 1975-85 period in the Central Core. In comparing these data sources, it can be seen that for the 1975-81 period an 18% increase in built floor space was matched by a 16% increase in inbound peak-period trips. Between 1981-5, however, built space increased by a further 18% while the volume of inbound peak-period trips actually declined slightly. Since 1981 there has been little relationship between floor space and trip growth in the Central Area.

The conventional explanation for this recent situation relates to the impact of the 1981-3 recession, an increase in Central Area office vacancy rates from 2% to 13%, an increase in the average FSW ratio and continuing employment losses in the non-office sector. It is felt that, if the economy picks up again to the high growth levels of the 70's, the current 0.54 m. sq. m of vacant Central Area office space could be quickly occupied along with further new developments, the old relationship between floor space and trip growth restored and the peak subway ridership figures of 1981 surpassed.

However, as noted above, this economic recovery may not be as strong or prolonged as some think. In a recent report commissioned by the Metro Economic Development Division entitled "Five-Year Forecast of Economic Conditions in Metropolitan Toronto" (April 7, 1986), a slowdown in the pace of economic growth across all sectors of the Metropolitan economy is forecast. The report states "1986 will be the crest of the most recent wave of strong economic growth which began in late 1982 ... indicators of economic performance lend support to the message of continued, albeit slower, growth".

Exhibit 9: Central Core Office Growth

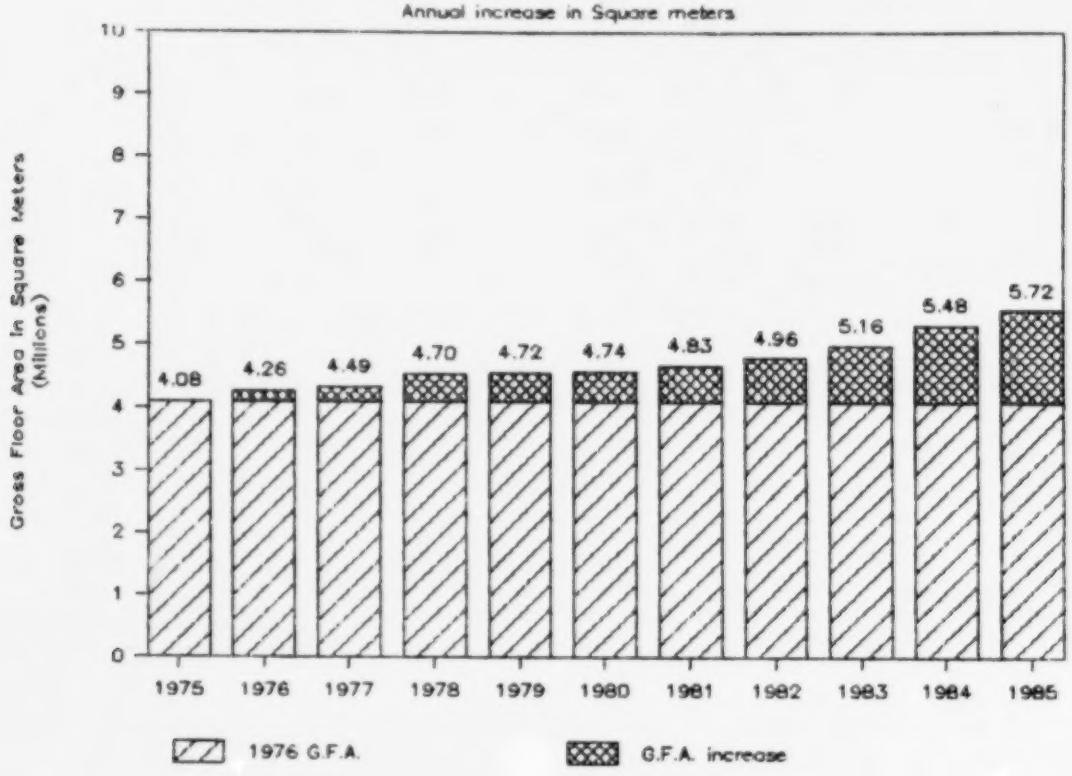


Table 9
1981 - 1985 Employment Trends in the
Financial District and Central Area

	Financial District					Central Area				
Land Use	1981	1982	1983	1984	1985	1981	1982	1983	1984	1985
Office										
Full time	81,680	81,098	78,143	79,341	78,319	206,918	204,185	201,201	208,644	211,433
Part time	NA	(353)	640	1,425	2,139	NA	(2,560)	5,689	6,531	9,364
Total	81,680	81,451	78,783	80,766	80,458	206,918	206,745	206,890	215,175	220,797
Non Office										
Full time	10,690	11,089	8,950	10,773	10,726	128,821	115,579	115,058	120,889	121,926
Part time	NA	(425)	2,982	3,528	3,599	NA	(5,286)	19,865	25,743	28,817
Total	10,690	11,514	11,932	14,303	14,325	128,821	120,865	134,923	146,632	150,743
Total										
Full time	92,370	92,187	87,093	90,116	89,045	335,739	319,764	316,259	329,533	333,359
Part time	NA	(788)	3,622	4,953	5,738	NA	(7,846)	25,554	32,274	38,181
Grand Total	92,370	92,965	90,715	95,069	94,783	335,739	327,610	341,813	361,807	371,540

Source: Metro Planning Department, Employment Survey, 1981-1985

Notes:
1) N/A - figures not available
2) ( ) - figures estimated using a 50% sample.

Recent Metro employment figures show that full-time office employment growth in the Central Area increased to 211,400 in 1985, just slightly above the 1981 level of 206,900. In the Financial District, 1985 office employment levels remain marginally below the 1981 figure. These data are shown in Table 9. The Metro counts for part-time employment are only complete from 1983 onwards. However, the figures for 1983, '84 and '85 show that part-time work in both the office and non-office sectors is becoming increasingly important in accounting for recent employment growth. Also, it should be noted that approximately 50% of the total (full- and part-time) employment increase in the Central Area over the 1983-85 period was in the non-office sector. This indicates that a large part of the recent employment recovery has been in part-time non-office activities.

City Planning staff are currently conducting the second Quinquennial Review of the Central Area Plan which will include an evaluation of the assumptions used in the 1983 CWTS studies, with particular attention being given to estimates of future employment growth. City Council currently has before it staff proposals for a number of office employment studies. These studies are particularly concerned with the impacts of technological change on office employment growth and structure. Without having undertaken the studies, it is only possible at this stage to advance some tentative hypothesis as to what future office employment trends in the Central Area might be.

The recent Ontario Task Force on "Employment and New Technology" produced projections of employment growth for certain industries within the Province's service sector. The figures presented in Table 10 are taken from the Task Force's report.

TABLE 10: EMPLOYMENT GROWTH RATE PROJECTIONS FOR SOME KEY CENTRAL AREA OFFICE ACTIVITIES

Industry	Actual (1971-81)	Expected 1985-90	Expected 1990-95
Chartered Banks	5.4%	0.0%	0.0%
Trust Companies	7.3	1.0	1.0
Life Insurance	4.7	2.0	1.0
General Insurance	2.7	1.5	1.5
Insurance Brokers & Agents	3.2	2.5	1.5
Government			
- Federal	2.4	0.0	0.5
- Provincial	1.9	- 1.0	- 0.5
- Local	3.3	1.5	1.0

Exhibit 10:1971 Central Area Work Trips

(Excluding Intrazonal Work Trips)

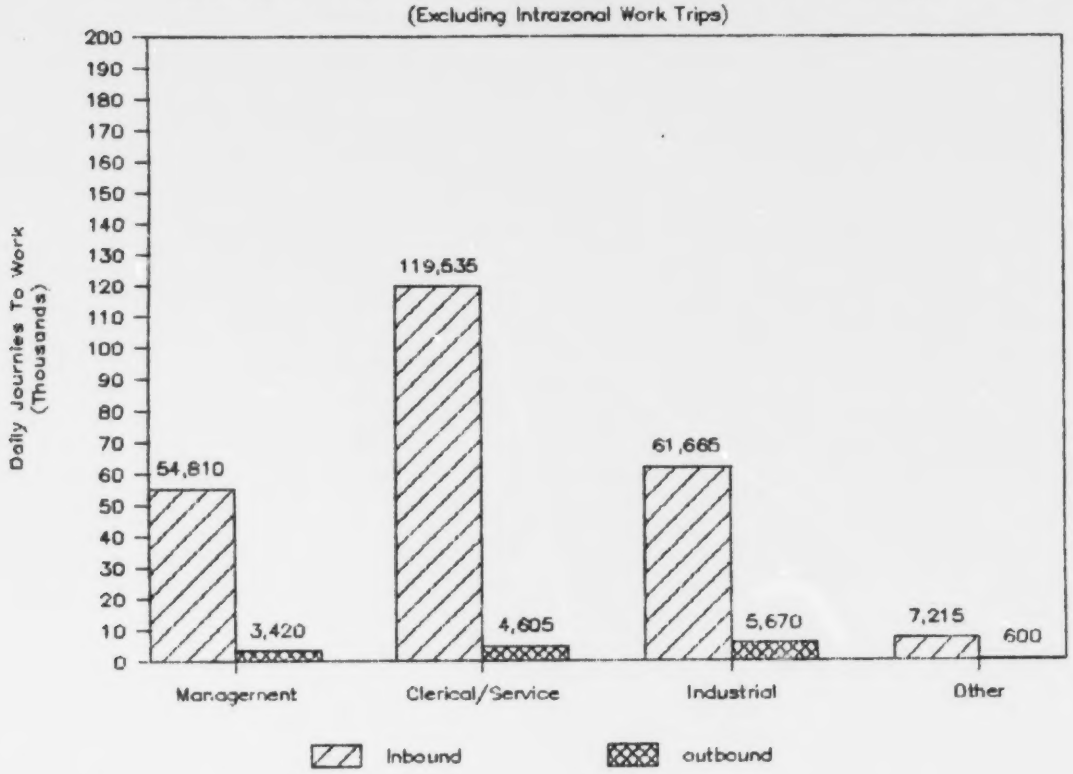
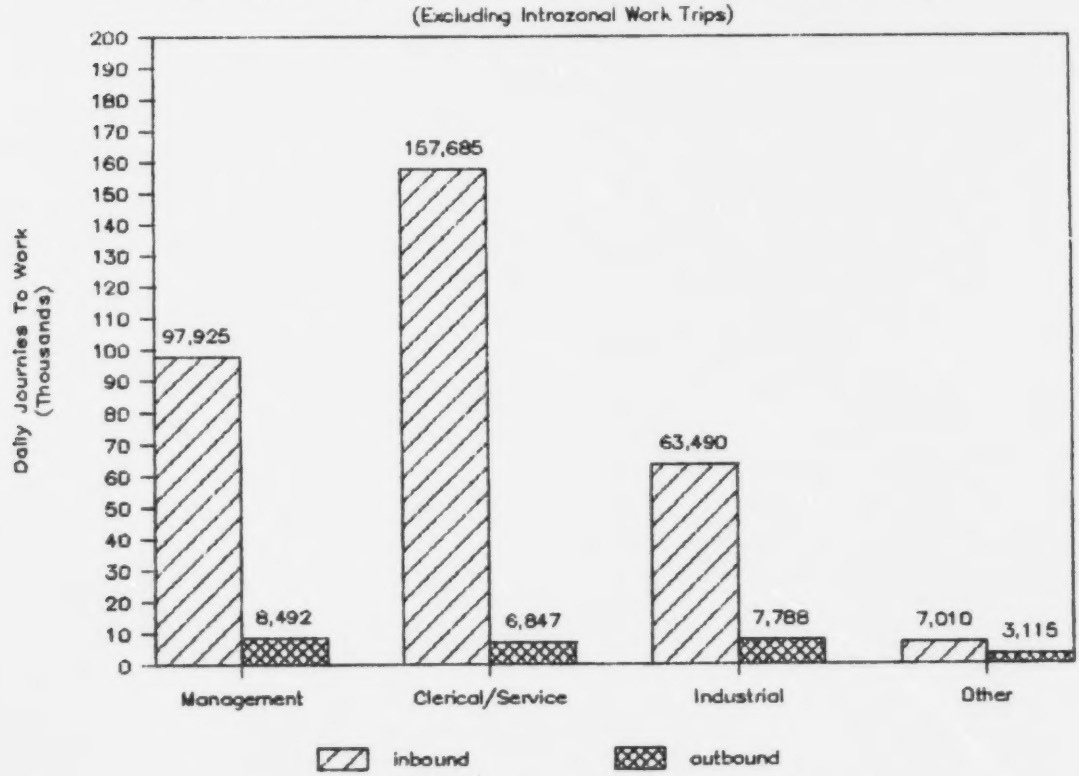


Exhibit 10:1981 Central Area Work Trips

(Excluding Intrazonal Work Trips)



However, although future rates of growth in office employment and peak-period commuting might decrease, there could remain a substantial demand for new office space in the Central Area as a result of increased FSW ratios and requirements for new office space in the form of "smart" buildings. An increasing proportion of "executive" employees and the need for larger work areas to accommodate new equipment as a result of office automation could lead to an increase in the average FSW ratio in the Central Area. Apart from the impacts on the amount of floor space required per worker, technological changes may also be creating requirements for a new type of office space in "smart" buildings. Office automation, which is based on computer technology, requires that modern offices be designed to interconnect equipment (users) throughout the building by means of what is often referred to as a local area network (LAN). The installation of cable-based LAN technology either requires the expensive refurbishing of existing buildings or new "smart" features. In this context, new office buildings might be built as essentially replacement space for old buildings with little net impact on employment and commuting levels in the Central Area.

The net result of these postulated increases in FSW ratios and technological requirements would be to weaken the relationship between office space development and employment and trip growth. These changes, if they occur to any significant degree, would bring into question employment and travel predictions based on the conventional "bottom-up" (i.e. land use) forecasting method. The City's second Quinquennial Review will be examining in detail these and a number of other arguments in an attempt to more fully assess the likely future relationships between office development and trip growth in the Central Area. At this stage it seems, however, that any long-term projections of future Central Area employment growth have to be treated cautiously. The general indications point to an uncertain future in which employment growth is likely to be slower than in the past.

Even under conditions of uncertainty, it is still appropriate for transportation planners to develop and protect long-term options for new transportation facilities. Real-world experience gained from the monitoring process should be used to continually up-date and revise future travel demands and long-term planning options. City and Metro staffs are currently developing a joint Central Area land use/transportation monitoring program to better understand current processes and predict future travel demands. The critical aspect with regard to major transportation improvements to service the Central Area is that of timing. There appear to be reasons, based on expectations of a slower rate of employment growth, for believing that major rapid transit improvements to the Central Area may not be required for some time

yet and, consequently, priority attention can be given to improving transit access to the suburban sub-centres.

Finally, as noted at the beginning of this discussion, transportation planning uncertainties do not attach simply to the issues of predicting the rate and amount of Central Area employment increases but also the composition, character and residential origins associated with these increases. As an example of the complexities associated with the need to predict the pattern of trip origins as well as destinations, the consultant study conducted for the City of Scarborough of the Network 2011 travel projections is instructive. The Tranplan Associates consultant study examined the impact on the Network 2011 findings for the Central Area of substituting the original GO-ALRT Scenario A projections with the revised population and employment figures subsequently developed by the Metro Planning Department. As discussed above, one of the significant features of the revised forecasts was to significantly increase 2011 population growth in the Central Area while generally reducing expected population growth elsewhere in Metro and the Region. Substituting the revised population predictions in the Network 2011 travel demand model resulted in a lowering of the forecasted increase in transit trips to the Central Area from the rest of Metro. The original Network 2011 prediction of 5,900 such trips was reduced to only 800 in the revised estimates. Most of this 5,000 loss in trips is redistributed to within the Central Area itself, with 75% of these new intra-zonal trips estimated to originate in the area south of College Street where most of the new residential development is forecast to occur. Tranplan's estimates of the travel demand impacts of the revised population and employment projections are summarized in Table 11.

TABLE 11: TRANPLAN ESTIMATES OF THE GROWTH OF TRANSIT TRIPS TO THE CENTRAL AREA FOR ALTERNATIVE LAND USE FORECASTS

	Transit Trip Growth (1981-2011)	
From	Network 2011	Metro's Revised 2011
Central Area	4,575	11,060
Rest of Metro	5,887	813
Ajax/Pickering	1,299	2,055
Peel/E. Halton	12,850	11,574
York Region	5,727	5,415
TOTAL	30,338	30,917

Based on the figures derived from Metro's revised land use forecasts for the year 2011, as presented in Table 11, Scarborough staff argued the position that there appears to be little need for a Relief Line to the Central Area. The revised figures indicate that virtually all of the future growth in transit trips to the Central Area will be from the Regions or from within the area south of College Street in the Central Area itself. The latter trips place no strain on the critical points of the Yonge subway and require no relief, while the former trips are in areas beyond the relief of the proposed DRT line. The whole exercise shows how apparently modest changes (at least at the regional scale) in the amount and distribution of population can quite dramatically alter the pattern of travel demand estimates for a particular sub-area. This type of sensitivity to modelling assumptions further illustrates the need to interpret long-term predictions cautiously and to act, whenever possible, on the basis of known experience.

5.3.2(c) Alternatives to the Relief Line

A. SURFACE TRANSIT

Following the publication of the ARTS study (June, 1982), TTC staff were instructed to report on "... surface transit improvements in the Central Area and the feasibility of increasing the capacity of the existing subway system". The TTC reported on these matters in a December, 1982 report. This report evaluated three surface transit options as alternatives to the Relief Line:

1) Broadview/King LRT service to Downtown from Broadview Station;

2) Parliament LRT service to Downtown from Castle Frank Station; and

3) Sherbourne Express bus to Downtown from Castle Frank Station.

The TTC concluded that the LRT routes could only provide relief to the Yonge line till 1991 and were therefore not worth the expense. Consequently, it was recommended that only the relatively inexpensive proposal for the introduction of a Sherbourne Express bus be considered as an interim surface transit option. As the TTC December, 1982 report stated "... after 1991, rapid transit will be the only solution to the downtown". This report also concluded that reducing headways on the Yonge-University-Spadina lines is not cost-effective in comparison to the Relief Line proposal.

As a result of these decisions, City Council recommended in early 1983 that the possibility of reducing headways on the Yonge subway be further studied and that the option of a Bay Street LRT line also be investigated. Consequently, the DRT study included an

analysis of these two alternatives as well as other surface transit options. These other surface transit options included the Sherbourne Express bus, the Spadina LRT proposal and a Don Mills express bus.

As regards the surface transit options, the general conclusions of the DRT study are that:

> "The relief that can be provided through surface transit improvements is limited .... At best, surface transit improvements can help ease the crowding and bridge the gap until new rapid transit can be built into the downtown (Report 2.03, p. 12)."

The Network 2011 report recommends that the Sherbourne Express bus and Spadina LRT (in conjunction with the Harbourfront LRT) options be pursued. The Harbourfront/Spadina LRT line is proposed on the grounds that it will "... provide some operating relief to the downtown transit system, serve the domed stadium and provide good access to the Waterfront" (Network 2011, p. iii). The DRT Study noted that the Spadina LRT provides limited relief to St. George Station and the Bloor line, not the Yonge/Bloor Station which is the critical point on the subway system. It is also noted that the implementation of the Spadina LRT line is contingent upon the re-building of the Spadina Avenue bridge. However, neither the DRT Study nor the Network 2011 report explicitly link the need for the Spadina LRT line to the requirement of servicing office development in the west end of the Railway Lands as is now the case recently presented by Metro planners.

B. THE BAY LINE PROPOSAL

The DRT Study analyzed the Bay LRT option as an underground facility. Operating the line as a conventional subway was rejected because it could not be designed to connect into the existing subway system and would, consequently, require a downtown yard site. The underground Bay LRT proposal was rejected by the DRT Study for the following reasons:

1. does not relieve the Bloor and Danforth lines which are projected to also be operating at capacity in the year 2011 (see Map 4);

2. cannot be extended northwards to relieve the Yonge line north of Bloor-Danforth;

3. has to operate as an extension of the Harbourfront LRT line;

4. duplicates the service of the Yonge and University subway lines; and

5. limited capacity (8,000 passengers/hr.) and expensive to build ($266 m.).

However, it remains the position of the Commissioner of Planning and Development that an underground Bay Street line is an option worth maintaining. To reject the Bay line, at this stage, is considered inadvisable for the following reasons:

1. the possibilities of operating the line as a subway or as an independent LRT line (not connected to the Harbourfront LRT) have not been fully explored;

2. the Bay line would serve the entire spine of the Downtown Core in a corridor of established and expanding transit demand, with good off-peak usage;

3. the Bay line would connect well with the TTC's established transit grid and the underground pedestrian system;

4. the Bay line would provide relief to both the Yonge and University lines and the Bloor/Yonge and St. George Stations, as well as other crowded Downtown subway stations;

5. the Bay line would serve areas both north and south of Front Street and would not focus trips on Union Station;

6. it would remove surface transit vehicles from Bay Street, opening up renewed possibilities for pedestrian and traffic management schemes in the Downtown area;

7. it is half the length of the Relief Line and, therefore, costs about half as much to build and operate.

C. REDUCED HEADWAYS ON THE YONGE LINE

The DRT Study also re-examined the question of reducing headways on the Yonge subway line. The study noted that the present signal and trackwork system is designed for a 120-second headway and 30-second station stops. When trains are operating at closer headways than 120 seconds, or when station stops exceed 30 seconds, a stop and go traffic jam occurs in the subway tunnels. An analysis of the Yonge line indicated that the capacity constraint is the station dwell (stop) time at the Bloor Station. With the existing trains operating on 130-second headways, it was calculated that delays will occur on the line whenever dwell times exceed 60 seconds. Such lengthy dwell times are frequently experienced during peak periods at the crowded Bloor Station.

A consultant study of the Bloor Station concluded that only limited improvements to station capacity could be made and, although these improvements will add to passenger comfort and safety, they will "... not significantly affect the Station dwell time of the subway trains" (DRT Report 2.01, p. 61). Consequently, the DRT Study concluded that reducing headways on the Yonge line was not a feasible option and the Network 2011 report recommended limited improvements to the Bloor Station primarily on the basis of improving passenger storage, comfort and safety, not line capacity.

D. THE ALTERNATIVE RELIEF LINE ALIGNMENT

The Wellington/Front Street alternative alignment for the Relief Line has certain advantages over the "preferred" Front/Railway Corridor alignment. The principal advantage of the Wellington Street alignment is that it better serves the large, existing concentrations of office employment in the Financial District and is not dependent upon the future growth of the Railway Lands and Waterfront areas for its ridership. By serving a larger existing market, the Wellington line provides a greater assurance of offering immediate and effective relief to the Yonge line and Bloor Station. The Wellington Street alignment is, however, sufficiently far south to service the areas of potential new development south of Front Street once they become established.

Also, the Wellington Street alignment provides two connections to the existing subway by connecting to both the Yonge and University lines. This alignment avoids the need to focus all transfer movement to the existing subway system at Union Station. The DRT discussion of the preferred alignment, as mentioned above, noted that crowding at Union Station could be a major problem. The Wellington Street alignment also affords better connections to the underground pedestrian system and the location of the Sherbourne Station is better situated. On the preferred alignment, the Sherbourne Street Station is in the middle of the TTR rail corridor.

An underground alignment on Wellington Street involves only limited property requirements in station areas, plus a sub-surface easement through Clarence Square. Some parking spaces would also have to be removed from the underground garage on University Avenue. However, generally, the disruption of constructing the line would be relatively minor and the fact that Wellington is a one-way street with limited streetcar use offers an advantage in staging construction operations.

The DRT Study acknowledges that the choice between the preferred and alternative alignments is a close one and the costs of the two lines (as described above) are very similar. On the basis of

these facts and in light of the arguments presented above, it is the position of the Commissioner of Public Works that the Wellington Street alignment should be recognized as the preferred option for the Central Section of the Relief Line route.

E. THE GO-TRANSIT ALTERNATIVE

With 95% of the growth in the Region's employed labour force (ELF) forecast to occur outside Metro, the Network 2011 report recognizes that GO Rail Transit will be of increasing importance in meeting future Central Area travel demands. As the cordon data in Table 4 illustrates, GO Rail Transit has experienced steady and significant peak-period trip growth over the 1975-85 period. Unlike the subway, GO Transit ridership into the Downtown continued to increase during the 1981-5 period and today carries about 16,000 peak-hour riders to Union Station.

The conclusions of the GO-ALRT Study program led to GO Transit initiatives for expanded services to the Central Area by means of incremental capacity increases to the existing GO Rail lines serving Union Station. Appendix E of the Network 2011 report presents estimates of these incremental capacity increases. With relatively minimal changes to the existing GO Rail services, peak-hour capacity to Union Station can be increased to 33,000 passengers. By undertaking further modest enhancements to service, peak-hour capacity can be increased to 39,000 passengers. These enhancements include adding an extra peak-hour train on each of the Lake Shore West and Lake Shore East lines (changes which are technically feasible) and operating 10-car trains on the Richmond Hill line (which requires station platforms to be lengthened). Other improvements could also be made to service outside the peak-hours to increase the attractiveness and capacity of the GO Rail system.

However, while it appears that significant capacity and service increases can be achieved on the GO Transit system, there are potential constraints to this expansion. Specifically, the ability of Union Station to physically accommodate the movements of passengers associated with these higher levels of service must be investigated and the future track requirements for GO-trains on the approaches to Union Station must also be assessed.

In this respect, the DRT Study concludes that increases to GO Transit capacity cannot provide a substitute or eliminate the forecast need for the Relief Line by the end of the 1990's. This conclusion is based on the following key assumptions:

1. Central Area office employment growth will range between 38,000 and 76,000 over the 1981-2001 period;

2. 90% of additional work trips will be on transit;

3. 55% of additional transit trips will be on TTC subway and 5% on TTC surface transit; and

4. 40% of additional transit trips will be on GO Rail Transit.

On the basis of the 40% assumption, the DRT Study estimates that peak-hour demand on GO Rail services coming into Union Station will increase to 32,000 passengers by the year 2001 (see Report 2.02, p. 82). Consequently, the projected level of demand is considered to be within the "enhanced" capacity of GO Rail services.

However, in subsequent reviews of the DRT Study, considerable debate has arisen over the transit modal split assumptions and the extent to which further incremental improvements could be made to GO Rail Transit to increase its attractiveness. It is argued that if a greater proportion of transit trips are assigned to improved GO Rail services the need for improvements to the TTC's rapid transit system is diminished.

The key assumption of the DRT Study that 40% of future Central Area transit trips will be by GO Rail "... was based on the demographic forecasting method, which recognizes that the majority of growth in the Metro Region population over the next twenty years will occur outside Metro" (Report 2.03, p. 15). The demographic forecasting method makes a distinction between increases in regional office employment growth based on growth in the population of the labour force and growth resulting from structural changes in the economy. This distinction is based partly on the results of the Woods-Gordon consultant study which forecasted that regional office employment growth will increase by 32% over the 1981-2001 period which is faster than the predicted growth in the regional Employed Labour Force (ELF) of 23.2% over the same period. The faster rate of office employment is attributed to structural change. In fact, the DRT Study calculates that if regional office employment only grew at the same rate as the regional ELF, the increase in office jobs would only be 136,650 compared to the regional forecast of 189,400 and the difference between these two figures of 52,750 jobs represents the component of structural change. Therefore, of the forecasted regional increase of 189,400 office jobs, 28% are regarded as being due to structural change and the remaining 72% due to growth in the regional ELF.

The DRT Study assumes that the 28:72 split identified above also applies to the Central Area as well as the region as a whole. Furthermore, the DRT report claims that the structural change component (28%) of Central Area office growth will almost entirely

result from changes in the composition of Metro's ELF and, therefore, approximately 28% of future commuting growth will be in Metro and serviced by the TTC. In contrast, the DRT Study assumes that nearly all the new trips associated with the remaining 72% of Central Area office employment growth will originate beyond the Metro boundary where the growth in the region's ELF is forecast to occur. However, the DRT Study calculates that approximately 45% of those trips originating outside Metro will use TTC services to access the Central Area. Consequently, GO Rail Transit is left to accommodate 40% (i.e. 72% x 0.55) of the overall increase in transit trips to Central Area office jobs during the 1981-2001 period. However, it is clear that the DRT Study's estimate of the 40% GO Rail factor is based on a number of assumptions and needs to be interpreted with some caution.

For example, in the Scarborough response to the Network 2011 report it is argued that 90% of the inter-regional transit trips to the Central Area should logically be assigned to GO Rail. Using this assumption, the overall GO Rail modal split factor is increased from 40% to 65%. The Scarborough response also points out that, if Metro's revised estimates of regional population and employment growth are applied to the travel demand model, then virtually all the increase in Central Area commuting is forecast to be either from within the Central Area itself or from beyond the Metro boundary, with little increase in the catchment area of TTC rapid transit services.

Notwithstanding the above discussion, it must be noted that the Network 2011 forecasts did not specifically utilize the aforementioned demographic forecasting method. Instead traditional transportation modelling procedures were incorporated to develop the transit system ridership levels. The potential variances of these forecasting procedures can only be adequately assessed in a truly systems-oriented analysis.

If an increasing proportion of trips are assigned to GO Rail, the possibility develops that further increases to capacity beyond those assumed in the "enhanced" level of service described in the DRT Study will be required. Such further enhancements could include even better service outside the peak-hours and increases in the capacity of the Milton, Georgetown, Richmond Hill, Stouffville and Bradford GO rail lines which all appear to have opportunities for relatively low cost, incremental expansion.

Certainly, recent trends and future forecasts suggest that GO Rail will be of increasing importance in serving the growth of Central Area office work trips. However, the question of whether or not incremental improvements to GO Rail services can be assumed to eliminate the need for new TTC rapid transit services to the Central Area seems debatable. Clearly, this is an area where the

monitoring of future Central Area commuting patterns will be important in helping decide the most appropriate transit investment strategy.

However, in accepting the deferral of the Relief Line, or any other TTC rapid transit proposals to service the Central Area, till the 1990's, it becomes very important from the City of Toronto's perspective that, in the interim, there is a strong commitment from the Province to support and implement the types of incremental improvements to GO Rail Transit described above. As a complementary measure, there should also be a renewed commitment from both the Province and Metro to expedite the integration of fare and service structures on the TTC and GO Transit systems in order to encourage the greatest use possible of GO Rail services.

6. CONCLUSIONS

From the City of Toronto's perspective the major conclusion of this report is the acceptance of the proposed Relief Line as a second priority option. The acceptance of second priority status is based upon a number of considerations, the most important of which relates to the incremental improvements to GO Rail services to Union Station, including fare and service integration with the TTC. The interim measures recommended in the Network 2011 report (specifically, the Spadina/Harbourfront LRT line, the Sherbourne express bus and the Yonge/Bloor Station improvements) should also be endorsed and other options (such as the Bay line and surface transit improvements in the Don Valley Corridor) kept under consideration. Other important considerations in supporting the deferral of the decision on the Relief Line relate to uncertainties regarding the future rate of Central Area office employment growth and the need, at this stage, to continue supporting the policy of deconcentration by making suburban transit investments the first priority.

When looking at the Relief Line proposal in detail, it is the position of the Commissioner of Public Works that the Wellington Street alignment through the central section of the route should be regarded as preferable to the Front Street/Railway Corridor alignment recommended as the first choice in the Network 2011 report. Given the difficulties of predicting long-term travel demands, the Network 2011 recommendations regarding the establishment of an annual joint Metro/City monitoring program for the Central Area and a five-year review process for evaluating Metro's rapid transit plans, should be endorsed.

In examining the Network 2011 proposals for the Sheppard and Eglinton rapid transit lines, there are found to be arguments both for and against each of these proposals. It is our conclusion that there is a priority need to improve transit services in both the Sheppard and Eglinton corridors. However, decisions on the timing and form of these improvements should be made within the context of an established Provincial position on the need for and affordability of such improvements and their relationship to broader Provincial regional planning strategies.

A weakness of the Network 2011 study is its relative neglect of the inter-regional commuting problem. With nearly all the Region's population growth forecast to occur outside Metro, the recent rapid growth in peak-period trips across the Metro boundary is expected to continue and will create serious problems unless greater attention is given to finding inter-regional solutions. Consequently, this report suggests that the Province be urged to play a greater role in the co-ordination and direction of land use/transportation planning at the regional scale.

APPENDIX

Table A1
Population and Employment Forecasts
For Selected Toronto Areas

	POPULATION				EMPLOYMENT			
Area	1984	2011	Change	% Change	1984	2011	Change	% Change
P.D. 1	112,347	183,661	71,314	63.5%	361,843	470,721	108,878	30.1%
N.Y. C.C.	n/a	n/a	n/a	n/a	25,247	40,170	14,923	59.1%
Scar. C.C.	n/a	n/a	n/a	n/a	24,490	50,308	25,818	105.4%
Rest Metro	2,025,094	2,005,016	(20,078)	-1.0%	734,032	871,881	137,849	18.8%
Subtotal	2,137,441	2,188,677	51,236	2.4%	1,145,612	1,433,080	287,468	25.1%
Ajax/Pick.	63,229	152,078	88,849	140.5%	21,510	41,400	19,890	92.5%
York	231,855	539,735	307,880	132.8%	101,700	227,700	126,000	123.9%
E. Halton	139,030	223,454	84,424	60.7%	46,400	86,360	39,960	86.1%
Peel	490,731	1,035,086	544,355	110.9%	261,425	472,840	211,415	80.9%
Total	3,062,286	4,139,030	1,076,744	35.2%	1,576,647	2,261,380	684,733	43.4%

Sources: Tables 1 and 2 "Network 2011: Scarbourough's Response"
& Metro Planning Department data.

Notes

1. P.D 1 is aproximately is the same as the Central Area.

2. Area definitions of Scarbourough and North York Centres are different to those used in Table 1 in the text of the report.

3. Population and Employment figures are based on Metro's Revised projections.

4. The areas above do not represent the Greater Toronto Area(GTA) which includes all of Halton, Durham, and Hamilton/Wentworth.

Exhibit A1: Forecasted 2011 Population

By Selected Area

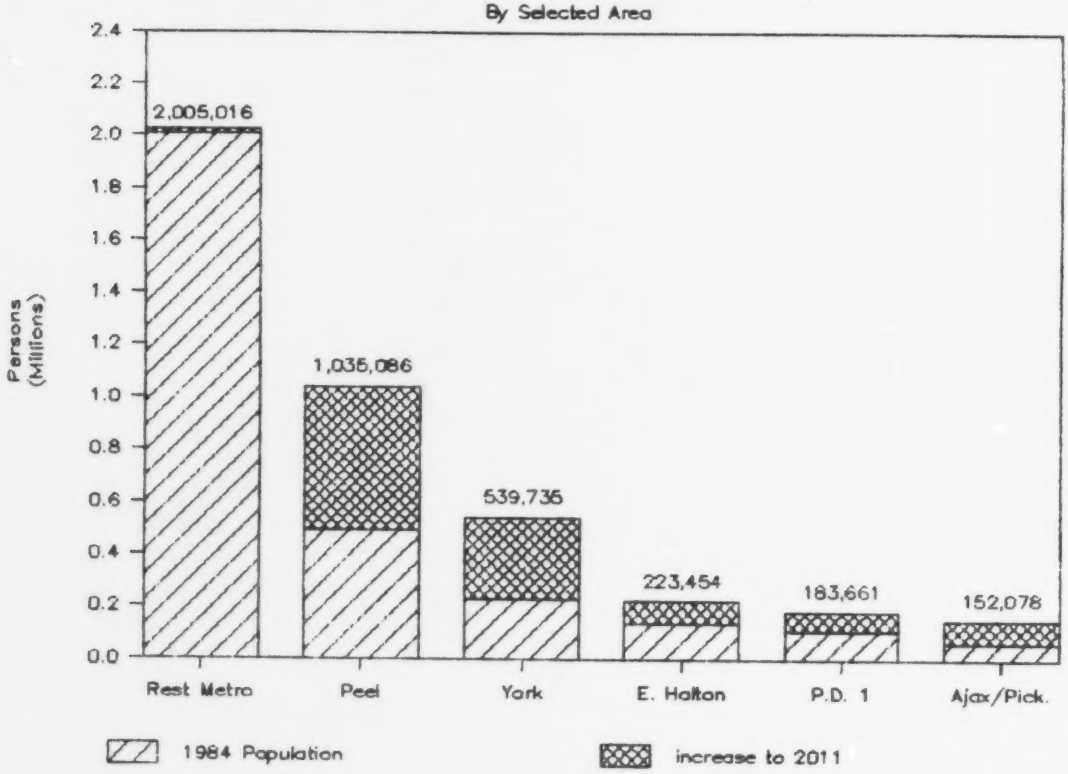


Exhibit A2: Forecasted 2011 Employment

By Selected Toronto Areas

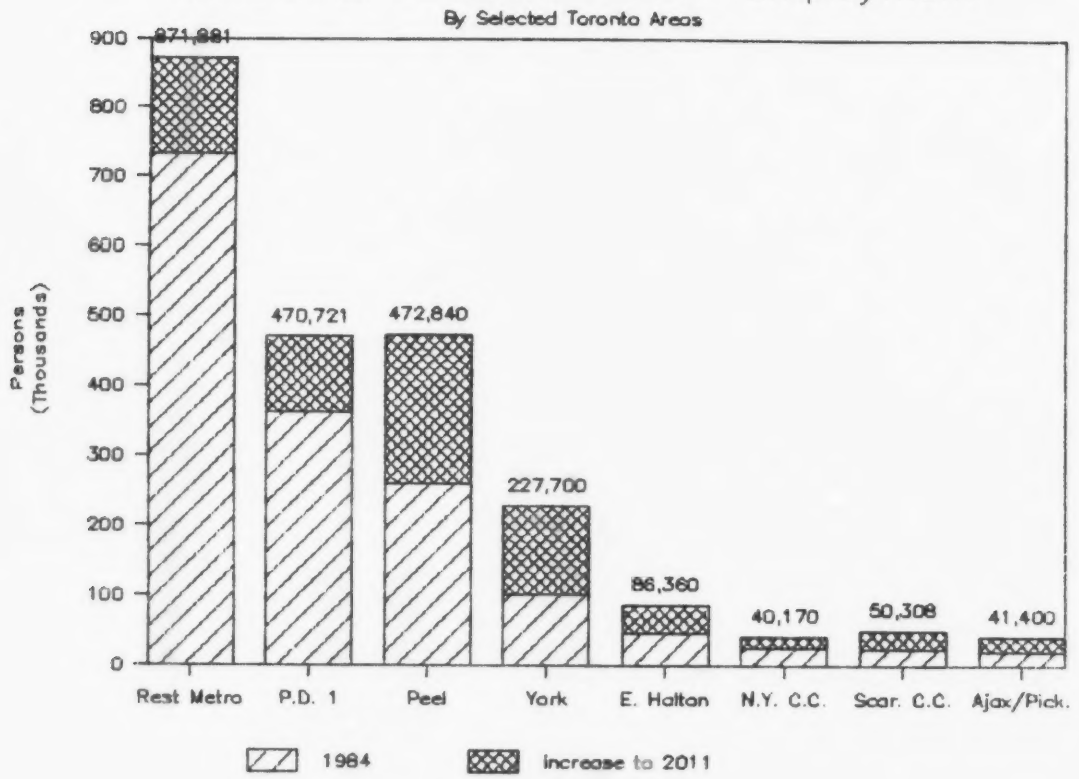


Exhibit A3: 1984 Population Share

By Selected Area

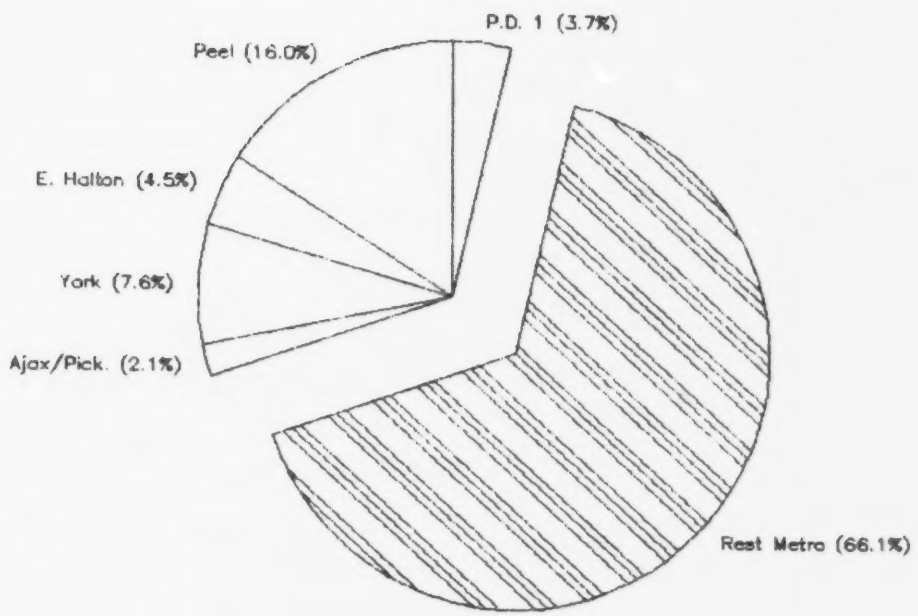


Exhibit A3: 2011 Population Share

Forecast By Selected Area

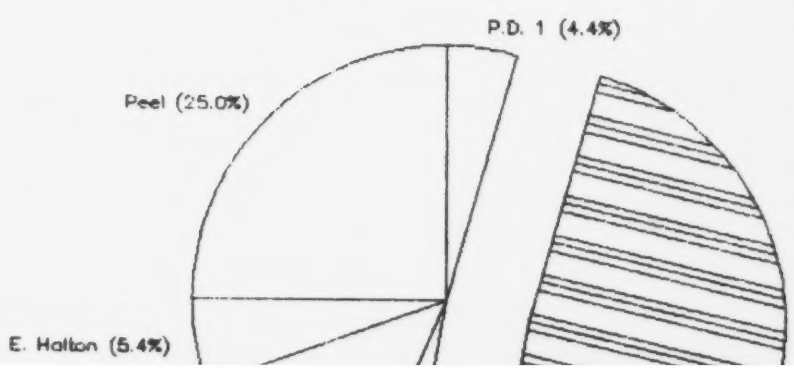


Exhibit A4: 1984 Employment Share

By Selected Area

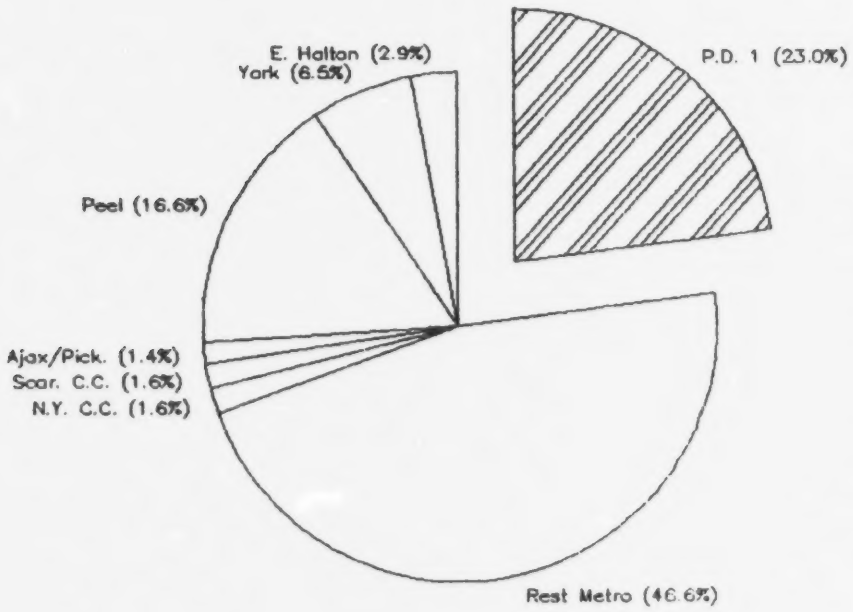


Exhibit A4: 2011 Employment Share

Forecasted By Selected Area